

OVERSIZE LOAD! 300+ PAGES OF RC

Win Big
\$4,500
in prizes
p. 242

RADIO CONTROL

car action

THE WORLD'S BEST-SELLING RC CAR MAGAZINE

HOT LIST
100
NEW PRODUCTS

SEE 'EM FIRST!

OFNA Violator
and Hyper7
PCR
RAY T1
Mini



THE A-TEAM'S
**MEGA
MONSTER**

Associated Monster GT
p. 122

**SUPER SEDAN
SHOWDOWN!**

Kyosho's new belt and shaft
sedans go head-to-head p. 102

HOW TO

Bulletproof your Losi Triple-X4
Easy-to-build battery discharger



rccaraction.com

\$5.99US \$8.99CAN



RCX.COM

DECEMBER 2003

TESTED: YOKOMO MR-4TC MINI | HPI R40 | NUOVA FAOR NITRO BIKE
PLUS: 3 HOT KYOSHOs! FW-05R | V-ONE-RR EVO | ENZO FERRARI MINI-Z

RADIO CONTROL car action

VOLUME 18 ■ NUMBER 12 ■ DECEMBER 2003

contents

features

68 Hot New Now 2004
New gear for the new year!
by the RC Car Action team

102 Super Sedans
The latest competition "K" cars duke it out
by Steve Pond & Raul Garcia

180 FIRST LOOK Inside OFNA's
New Big Buggies
Hyper 7 PCR & Violator
by George M. Gonzalez

190 FIRST LOOK XRAY T1 Mini
Mighty Mini
by Matt Higgins

208 6th Annual Hot Rod Hobbies
Off-Road Shootout
T4 terminates all
by Jason Sams

220 5th Annual Hitec Parking Lot Challenge
On-road extravaganza!
Sponsored by Hitec, Hobby People & XTM Racing
by George M. Gonzalez

224 How to Build a Battery Discharger
No drain, no gain
by Jason Sams

236 How to Bulletproof your
Team Losi Triple-X4
Make your Losi last!
by Lito Reyes

242 National Champs Sweepstakes
Your chance to win Associated B4, T4,
and GT repli-racers
by the RC Car Action team



ON THE COVER:
Associated's Monster GT
aims high. Jason Sams
got the snap.



122

Team Associated Monster GT
The A-team goes monster trucking
by George M. Gonzalez



144

HPI R40
Hara show!
by Kevin Hetmanski



132

**Kyosho Mini-Z
MR-02 Enzo**
Palm-size performance
by Paul Onorato

168

Yokomo MR-4TC Mini
The return of 1/12 touring!
by Jason Sams



158

**SF501 Nuova Faor
Nitro Motorcycle**
Gas burnin' bike
by Stephen Bess



columns

24 Starting Line
by Peter Vieira

26 Readers Write

36 Readers' Rides
by John Howell

48 Pit Tips
Illustrations by
Richard Thompson

58 Troubleshooting
by Steve Pond

199 Racer News
by the RC Car
Action team

246 4x4
A New Era in
Mad Force mods
by Kevin Hetmanski

264 Piston Power
12 prerace prep tips
from the pro's
by Stephen Bess

274 Body Shop
Airbrushing 101
part deux
by Joshua Thiel

292 Product Watch

305 Backlot
by Peter Vieira

resources

298 rcstore.com

303 Index of advertisers

**303 Customer service
information**



EDITORIAL

Editorial Director JON CHAPPELL
Executive Editor PETER VIEIRA
Senior Technical Editor STEVE POND
Senior Editor JOHN HOWELL
Associate Editors MATT BOYD, KEVIN HETMANSKI, PAUL ONORATO
Assistant Editor MATT HIGGINS
Managing Editor DANA DONIA

WEST COAST

Senior Editor GEORGE M. GONZALEZ
Assistant Editor JASON SAMS

CONTRIBUTORS

BOB ALLGEYER, KENNY BERGSCHULTZ, CHRISTIAN BOICE,
DAVID C. KONNEKER, BRIAN LESLIE, ELVIS MACHADO, NATHAN MILLER,
ERIC QUERTERMOUS, LITO REYES, NICK SAVA, JOSHUA THIEL,
RICHARD THOMPSON, RICHARD TRUJILLO, BILL ZEGERS

COPY

Copy Director LYNNE SEWELL
Copyeditors COREY M. WEBER, PAIGE L. HAMILTON

ART/DESIGN

Corporate Art Director BETTY K. NERO
Senior Art Director LESLIE COSTA
Promo Designer CHRISTOPHER CHU
Associate Art Directors MIKE AMADITZ, CHRISTOPHER CASEY,
VICTORIA HOWELL, JAMES JARNOT, JOE ULATOWSKI
Staff Photographers PETE HALL, DERON NEBLETT

ADVERTISING

Director of Sales RICK VANDERVOORN
Senior Account Executive MONA TASSONE
Account Executives JASON ASCH, CRAIG BIANCO, ALEX CHUNG,
CHRISTINE DILAURO, JOHN ELLERTSON
Advertising Coordinator ANN T. WIEBER
Sales Administrator YVONNE GAGNIER-RODNEY

NEW BUSINESS

Director of New Business Development LINDA D. TELESKO

CONSUMER MARKETING

Consumer Marketing Director KATHY RHODES
Circulation Manager STACEY NELSON
Product Marketing Manager JASON BONGO

MARKETING

Director of Corporate Marketing JENNIFER WARE
Media Marketing Manager VANESSA LAFERRIERE
Marketing Assistant MARIE TERIO

PRODUCTION

Director of Production and Manufacturing STEPHEN R. BEST
Senior Production Manager CHRISTINE BACHMANN
Production Manager CHRISTINA MASCHKE-MILEO
Senior Production Coordinator BOBBY-JO BALDWIN
Production Coordinator SHERRY MORGAN
Print Coordinator TOMLINSON S. WHEELER

INTERNET

Web Developers HOLLY HANSEN, LEO RICKS
Web Programmer JAIME TORRES

PUBLISHING

Group Publishers LOUIS V. DEFRANCESCO JR.,
YVONNE M. DEFRANCESCO
Associate Publisher RICK VANDERVOORN

CORPORATE

Chairman of the Board ALDO DEFRANCESCO
President and CEO LOUIS V. DEFRANCESCO JR.
Executive Vice President YVONNE M. DEFRANCESCO
Chief Financial Officer CAROL SHEPHERD

No brakes!

There's no shortage of stopping power in today's RC machines, but when it comes to the industry's creativity, no one seems to be slowing down! Just check out our "Hot, New, Now" coverage for proof. Just when you thought there was nothing left to invent, there's a whole new surge of incredible cars, trucks, gadgets and gizmos to keep you stoked. It's amazing how many innovations we now take for granted. Remember frequency crystals? Thanks to Hitec, Novak and JR, most of us twist our way to the next channel. Brushless motors were once perennial "future of RC" list makers, but now they're here to stay. Monster trucks continue to spur ever more exciting innovations; supersized engines, mega-suspension, multi-speed transmissions (and even multiple engines!) are all off-the-shelf items, and Associated is in on the act with Team Losi not far behind. Just a few years ago, no one would have believed that the number-one brands in racing would field genuine mega-monsters, but here they are. And there's so much more: 1/12-scale touring is poised for a comeback with high-performance rides from XRAY and Yokomo; Team Losi is launching an entirely new way to go micro with serious 1/18-scale off-road hardware; and the innovations in electronic gear show no signs of slowing.

In short, it looks as if 2004 will be another great year for RC! Here's to a big holiday cash infusion—we've got stuff to buy!

IN THIS ISSUE

THE BIG ONE. Your first stop for new stuff is obviously "Hot, New, Now." You'll find 18 pages of product to ponder, so get comfortable!

NEW RIDES, BIG AND LITTLE. We're running the size spectrum in this issue. At the "big" end, you'll find a "First Look" on OFNA's latest buggies (the Violator and the Paul Coleman Edition), and Associated's much-anticipated Monster GT gets a full "Track Test"—at last! On the "little" side, there are "Track Tests" of the new Kyosho Mini-Z and Yokomo MR-4 Mini, and a "First Look" at the XRAY T1M 1/12-scale tourer.

THE BEST K-CARS YET. The Kyosho guys must have been burning up a lot of CAD time, with not one, but two huge nitro touring releases. The three-belt V-One RR has been updated to "Evolution" status, and the all-new, shaft-drive FW-05 debuts in this issue. We test 'em both in a shaft-versus-belt showdown!

TOUGHEN-UP TIPS AND A BRIGHT IDEA. Electric racers, you're in luck. This month, we show you how to bullet-proof your Team Losi Triple-X4 and how to assemble a professional-looking bulb discharger to keep your packs running strong.

Until next time,
Peter Vieira
Executive Editor
peterv@airage.com

TEAM ASSOCIATED
NATIONAL CHAMPS SWEEPSTAKES!

Wanna shot at winning an Associated B4, T4, or RC10GT set up like the Nats-winning rides of Billy Easton, Travis Amezcua, or Mark Pavidis? Flip over to page 242 and get your name in the running! There are lots of other prizes to win, too. Don't miss out!



100 East Ridge, Ridgefield, CT 06877-4606 USA

RCCARACTION.COM

PRINTED IN THE USA

Hot Stuff

MOTOR Cooling Stand



Black billet aluminum motor stand/heatsink with cooling fan. Designed to quickly and safely cool down your stock or modified motor between runs. No more trying to work on a **HOT** motor in order to make the next heat. Fan can be run off a 6 volt battery or power supply.
RC2085, \$29.99

BATTERY Cooling Stand



Foam car stand and battery cooler with oversized fan. Cools two stick or side by side packs at one time. Lets you get your packs back on charge quicker
RC5112, \$15.99



www.teamtrinity.com

readerswrite

sponsored by

TRINITY

WRITE TO US! Send snail mail to "Letters," Air Age Inc., RC Car Action, 100 East Ridge, Ridgefield, CT 06877-4606 USA, or email readerswrite@airage.com. We'll edit them as we see fit, and we don't have room to answer every one.

BECAUSE

I'm getting ready to plunge into RC with my son, so the timing of your "6 Hot RTRs for under \$350" article was perfect. I saw that you mixed it up with different brands in each category, except for the monster truck category, where you picked Traxxas for both. Aren't there other options? Nothing against Traxxas; those T-Maxes seem very popular, but I'm just curious. [email]

Sam Amos

On the nitro side, there's a ton of monster truck choices; take a look at the HPI Savage, Kyosho Mad Force, OFNA Pirate MT Sport, DuraTrax Nitro Quake and Associated Monster GT, to name a few ... not to mention the T-Maxx and the upcoming XTM Mammoth and Tamiya TNX. But those trucks were all outside our \$350 price cap, so the SportMaxx was the easy pick. On the electric side, Traxxas simply owns the monster category; no other trucks even come close to the one-two punch of the Stampede and E-Maxx.

—Pete

SMOKIN'

I'm 34 years old and have been into RC since the Tamiya Sand Scorchers was a hot new car. In all these years, I have never seen an RC car made into a total tire-smokin' burnout machine. The car should have an oversize motor, rear-wheel drive and a way to lock the front wheels (like line lock on pro stock drag cars). I made one years ago, but now money is a little tight. I know that a burnout car would really inspire a lot of hobby guys to try to make one. [email]

Tim Furlong

Did your car actually smoke the tires? I'm sure it lit 'em up, but did they produce actual, visible smoke?

Gotta have smoke for a burnout car to be truly cool, but I don't think RC tires will actually produce the white fluffy stuff. I definitely like the idea, though; maybe Pro-Line could make smoker tires designed just for burnouts!

—Pete

DUAL-PAD DILEMMA

I noticed that you said that Losi cars were the first to use a dual-pad slipper clutch with the spur gear captured in the middle. If I recall correctly, the RC10 Worlds Edition had a dual plate, and maybe the previous versions had it as well. Also, when I read the review of the Triple-X in a previous issue, you said a "Dislike" was not being able to keep the slip-

per setting when you change spur gears. Why didn't you write that for the B4 as well? [email]

Dan Griffin

Nope; all the slipper-equipped RC10s that preceeded the B4 used single-pad slipper clutch designs. As for the "Miss" of not being able to change spur gears without altering the slipper setting, it's kind of a bummer that you have to reset the clutch when you swap gears, and I said as much in my review, although I didn't put it down as a "Dislike." I

could have, but since I'd rather have the smoothness of a dual-pad slipper rather than the convenience of a single-pad unit, I didn't bother.

—Pete

SHORTEST LETTER EVER

"Triple-X vs. B4" Did it really take a 10-page article to figure that out? [email]

Aaron Verdow



Yes, given how close they were! The B4 didn't exactly win by landslide, which goes to show just how refined today's cars are. It's harder than ever to make a faster buggy, but we're sure that Losi's working on it.

—Pete

#

readers' rides

YOUR BEST BUILDS

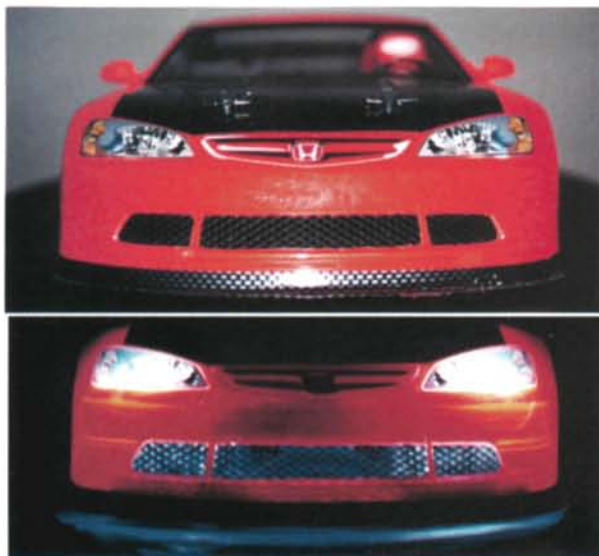
BY JOHN HOWELL

Reader's Ride OF THE MONTH



DENNIS BRANECKY, DALLAS, TX CUSTOM-BUILT TRACTOR PULLERS

There's a lot of work in these RC rigs! Dennis' puller on the left is powered by four—count 'em—Traxxas Pro .15 engines complete with EZ-Starts! The custom-fabricated frame is made of tubular steel, and power is transferred to the rear end by two separate differentials and brake setups so that he can steer it with the wheels off the ground. The drive train was designed so that he could run one, two, three, or four engines separately—or all of them at once. The puller has so many cool features that we can't even begin to cover them here. The other truck is Dennis' custom-built 4WD pull truck. It has a flip body, a custom frame and a brass fuel tank.



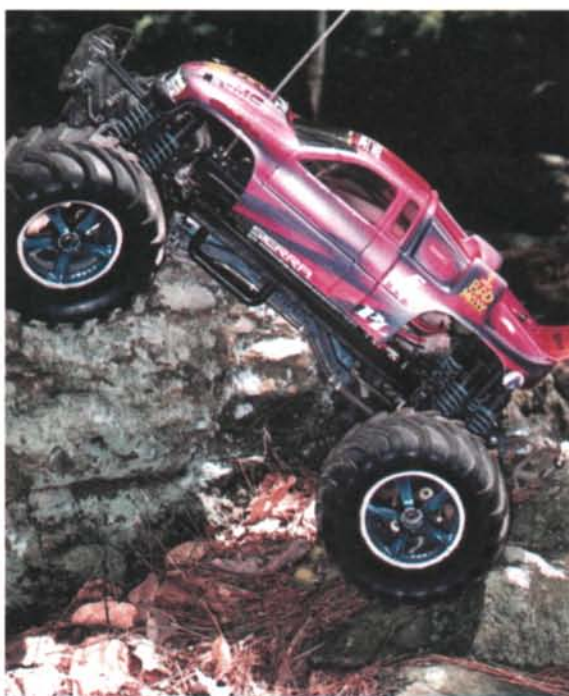
RANDOLF LEETONG, JACKSONVILLE, FL TRAXXAS 4-TEC

Randolf's Traxxas touring car has all the makings of a hot street racer. He replaced the stock mechanical speed control with a DuraTrax Intellispeed ESC and added a Honda Civic body that he painted with Pactra's Fluorescent Orange and detailed with carbon-fiber trim. While he was at it, Randolph installed Tamiya side mirrors, modified the front bumper and improvised a grill to make it look more like a real street car. Other details include a NOS bottle with tubes, a steering wheel, a driver figure and working lights for the finishing touch.

WIN A ONE-YEAR SUBSCRIPTION TO RC CAR ACTION MAGAZINE! Send a sharp, uncluttered, well-exposed color photo of your vehicle (no Polaroids) and a brief description to "Readers' Rides," *RC Car Action*, 100 East Ridge, Ridgefield, CT 06877-4606 USA. If we publish your photo, you'll receive a free, one-year subscription to *RC Car Action* and will be eligible to win the "Reader's Ride of the Year Contest." Write your address and phone number on your letter and on the back of every photo you send. Send email submissions to readersrides@airage.com.

DWIGHT SHOWLEY, VISALIA, CA HPI RS4 RALLY

Dwight's HPI RS4 Rally is equipped with Futaba electronics, a Team Orion Rush motor and an HPI Mitsubishi Lancer body. According to Dwight, he runs the car on a homemade dirt track. He adds, "Sorry about the posts, I'm afraid to cut them." No worries Dwight! Just enjoy that car of yours—and your free subscription to *Radio Control Car Action*!



RICHARD HANNAWAY, NORTH PROVIDENCE, RI TRAXXAS E-MAXX

Shortly after he purchased his Traxxas E-Maxx, Richard got to work to modify his new monster. Richard custom-built an extended chassis, front and rear bumpers and a one-piece skid-plate—all out of Lexan. Other mods include: Trinity heavy-duty springs; Reedy Modified Badd Maxx

motors; Reedy 3300 batteries; XTM tires; Hot Bodies wheels; and last, but not least, a Pro-Line GMC Sierra body Richard painted himself.

readers' rides

DON SCHMALFELDT, BURLINGTON, WI TEAM ASSOCIATED RC10GT

Sometimes a picture speaks for itself. Don's clean-looking GT caught our eye for two reasons. One, it's a good picture, and two, it has a stylin' paint job. As far as details on the truck, Don tells us that he installed a set of MIP CVDs, Lunsford titanium turnbuckles, RPM hop-ups and Pro-Line tires, wheels and body. A K&N air filter keeps dirt out of his carb.



BRANDON KLOS, WEST BEND, WI YOKOMO MR4-TC PRO

Brandon has a pair of interesting rides. His Yokomo sits atop the racing go-kart that he used in the World Karting Association's national road racing series. This photo of his favorite pair of toys was taken when he ran his kart at the Daytona International Speedway, on the same course as the Rolex 24 Hours of Daytona race. Brandon's Yokomo shares the same paint scheme as his go-kart, but the running gear is a little different (obviously). Inside his Yoke is an LRP V7.1 ESC, a Trinity P2k2 motor and KO Propo radio gear.

The Best Kept Secret in Racing...

REEDY

Reedy "X-cell" GP3300's. Reedy/Yokomo Gold Peak 3300's have longer run times than most other 3300 Ni-MH cells, and have a great low price that makes them your **BEST** choice!

#665 Reedy GP3300
"X-cells", 6-Cells...\$89.99

#664 Reedy GP3300
"X-cells", 4-Cells... \$59.99



Reedy 3300 "Extreme" Sanyos. The newest 3300 Ni-MH cells from Sanyo! The Reedy 3300 "Extreme" cells are cycled, matched, and voltage treated for on-track performance you can really feel.

#660 Reedy 3300 "Extreme" Sanyos, 6-Cells...\$129.99

#659 Reedy 3300 "Extreme" Sanyos, 4-Cells... \$87.99

**TROY EISENRICH, MADISON, WI
TRAXXAS T-MAXX**

Get ready—this is no stock machine we're dealing with here! Troy's T-Maxx is decked-out with a ton of hop-ups. Here's the list: RPM wide-suspension arms; Imex Swamp Dawg tires; Pro-Line Outback Weld wheels; a Megatech M16 engine; a wheelie bar; Hardcore Racing titanium front and rear skids; Dynamite aluminum center skid, steering bellcranks and wheel hexes. It also includes: an RPM front skid protector; a Peterbilt body; a Hobbico high-torque metal gear servo; an Associated tuned pipe; a DuraTrax Overdrive ST header; Lunsford Racing titanium turnbuckles and hinge pins; and RPM chassis braces. Troy also prepped and painted the body himself with some help from a XXX-Main mask kit.



**JAY KOPYCINSKI, GILBERT, AZ
HYBRID CLOD ROCK CRAWLER**

This is one wild-looking machine! Jay's rock crawler started out as a Tamiya Clod Buster, and he calls his creation the ROKCLOD4. It features a tubular chassis with a custom four-link suspension setup. The chassis is handmade out of steel tube that was brazed together and then powdercoated. A set of T-Maxx shocks handles the damping action. The truck rolls on TXT-1 wheels with Juggernaut 2 tires. It's pretty sweet-looking, Jay; it looks as if it could roll over just about anything! ■

and New **MATCHED** Sport Packs!



Reedy's "Rated-X" Matched sport pack batteries use genuine Panasonic or Sanyo Ni-MH cells that have been given the same cycling, matching, and voltage treating as Reedy's championship-winning racing cells. The batteries are fully assembled in clear tubes so you can see the matching info right on the label of each cell. Don't settle for "mystery" cells in your sport packs... get Reedy's "X-Rated" packs and see the power you've been missing!

REEDY

#698 Reedy "Rated-X" Sport Pack, Sanyo cells

#699 Reedy "Rated-X" Sport Pack, Panasonic cells

**ONLY
\$59.99**



Visit our Website: www.rc10.com/reedy

WIN AN OFNA YO-YO & AN RC CAR ACTION SUBSCRIPTION!

Do you have a winning idea? Share it. You could win a 6-month subscription (or an extension of your subscription) and an OFNA Yo-Yo. The monthly "Tip of the Month" winners will all be considered for a grand prize—an OFNA OB4 International RTR electric car kit. Send a sketch or photo to "Pit Tips," RC Car Action, 100 East Ridge, Ridgefield, CT 06877-4606 USA. Print your name and address clearly, or you won't win a thing. Sorry, we just can't acknowledge every tip or return the ones we don't use.



CRIMPED CLIPS

Try this tip to prevent your nitro car or truck's body clips from coming out during a long Main. After installing the body clips, crimp the ends so that they overlap. The crimped clips will hold more tightly, but they are still easy to pull off with pliers should your pit crew need to perform some unexpected work mid-race.

Frank Dillion
Drew, MS



NO-MESS STINGER TIP

No one wants exhaust residue leak-

ing all over the place. Next time you finish running your nitro rig for the day, place the rubber cap for your fuel bottle over the pipe's stinger tip. This will keep the oily fuel mess in the pipe and off your stuff. If the rubber cap from your fuel bottle doesn't fit, check your local hardware store for caps in a variety of sizes.

Brad Poisson
White River Junction, VT



TIP OF THE MONTH

ANTENNA ANCHOR

To prevent an antenna tube from popping loose, slide about 1/2 inch of fuel tubing over the tube and its mount. The tubing will hold the antenna snugly enough for it to stay put, but it also allows it to be removed easily.

Justin Aube
Afton, OK



CRASH-PROOF FENDERS

To prevent the fenders on your car's body from cracking, use Shoe-Goo to glue small pieces of drywall tape to the high-stress areas inside the shell. The front wheel wells, front air dam and other crack-prone areas will last much longer with this treatment.

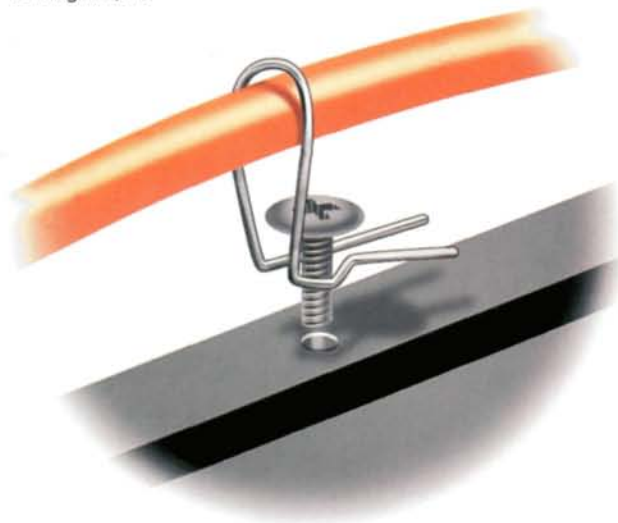
Mark Meek
Laguna Hills, CA

BODY CLIP FUEL-LINE CLIP

To keep your fuel line away from moving parts, bend the handle of a body clip up into a 90-degree angle that will hold the fuel line. Snap the clip over a screw on the chassis to keep the line away from gears and linkages.

Al Lopez

Los Angeles, CA



NO-SLIP NITRO WORKPLACE

Working on your nitro stuff can sometimes get messy. To solve this problem, pick up an old "flat" baking pan and line it with rubber, no-slip shelf liner. The liner is sticky enough to prevent parts from moving around on you, and the raised edges of the "flat" pan will stop anything from rolling off.

Rob Zarrella

Poway, CA



EASY FIND SERVO CENTER

It's always best to properly center your servo with the transmitter. When the servo is centered, mark a tooth and make a corresponding line on the servo case to indicate where the output gear is centered. Now when you're at a race and you don't have time to properly center the servo (or your transmitter is in radio impound), you can use these marks to get it close enough to make your race.

Tim Daley

Pontiac, IL

BEST BATTERIES

Take advantage of your digital charger. Place a white address label on each of your packs and record the peak voltage and capacity after each charge. This will allow you to track each pack's performance so that you can better determine which packs to use for practice, which to set aside for the Mains, or which pack to retire for play use.

Todd Crampton

Berwick, PA



"Pit Tips" are submitted by readers and are screened for functionality, feasibility and safety but are not tested by Radio Control Car Action. Radio Control Car Action and the submitting authors are not responsible for personal injury or damage to models or tools resulting from readers' use of "Pit Tips."

troubleshooting

YOU'VE GOT PROBLEMS? WE'VE GOT FIXES.

BY STEVE POND

NEED HELP? Send your "Troubleshooting" questions and comments to troubleshooting@airage.com, or mail them to "Troubleshooting," c/o RC Car Action, 100 East Ridge, Ridgefield, CT 06877-4606 USA.

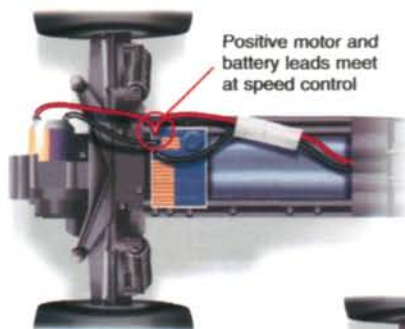
Q HAYWIRE 3-WIRE

I own a Traxxas Stampede and just bought a DuraTrax Intellispeed 8-T pro-racing ESC and a Reedy Ti 14T double modified; I don't know how to set it all up. I've never set up a 3-wire ESC and have never owned a modified motor. I tried to set it up the way it looks in the manual. I connected the battery wires, and the servo works, but the motor doesn't. Help! [email]
Cameron

A The Intellispeed's instructions rely on a single photograph to show the wiring of the ESC. Unfortunately, the photo isn't correct. Here are the steps to correctly hook up the 3-wire speed control:

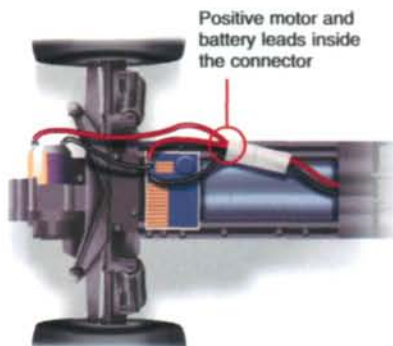
The Intellispeed 8T speed control has three posts. If you look at the words molded into its plastic case (remove the small heat sink so that you can see everything), you'll see that they tell you where to connect the leads. Connect the battery's negative lead to the "BATT-" post and the motor's negative lead to the "MO-" post; connect the motor's and battery's positive leads to the "B.M.+" post. The instructions' photo is confusing because it doesn't show the wire that goes to the motor's positive lead.

When you use connectors, attach the black negative lead to the connector's negative terminal, and then to the ESC's "BATT-" terminal. Next, connect the blue wire from the motor's negative terminal to the ESC's "MO-" post. Wiring the single remaining post allows a little creativity. You can solder two red leads to it—one to be attached to the motor's positive lead and the other to the battery. You could solder a single wire from the speed control to the battery (or connector) and then attach another wire at the battery end to connect it to the motor. Last, you could use a single red lead that's connected to the battery and the motor. Strip off a section of the wire's insulation where it would be connected to the battery, and then cut the wire so that it will reach the motor but have a little slack to allow for motor movement. This last option would obviously be better hard-wired, but no matter how you choose to connect the speed control to the motor and battery, you have a few options.



Positive motor and battery leads meet at speed control

These illustrations show a 3-wire ESC with a connector in a Traxxas Stampede. The positive lead (shown in red) must connect to the motor, battery and ESC.



Positive motor and battery leads inside the connector

REAL PERFORMANCE PRODUCTS!

T-Maxx/2.5-Maxx Steel Top Shaft

NEW



This precision machined **hardened** steel top shaft will fit all T-Maxx. Includes oversize ball bearing. RRP \$525

T-Maxx/2.5-Maxx FORWARD ONLY Steel Gear Kit

NEW



This kit contains a 26T **hardened** steel output gear, a forward drive hub adaptor, steel spacer and Pin. RRP \$566. **Hardened** aluminum version RRP \$565.

T-Maxx/2.5-Maxx Hardened Forward Primary Gear

Precision machined from solid steel and then **hardened**. RRP \$529. **Hardened** aluminum version RRP \$528.

NEW



www.robinsonracing.com

T-Maxx/2.5-Maxx Forward Primary and Reverse Gears

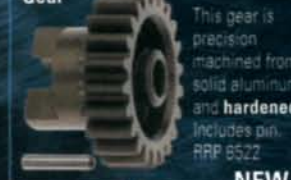
NEW



This kit contains a precision machined **hardened** steel primary forward gear, a **hardened** aluminum reverse gear and pin. RRP \$521

T-Maxx/2.5-Maxx Primary Reverse Gear

NEW



This gear is precision machined from solid aluminum and **hardened**. Includes pin. RRP \$522

MAKE NO COMPROMISES!

T/E-Maxx/2.5-Maxx Accessory Spurs



A wide range of spurs fit our Double-Disc Slipper Kits. Choose from machined Super-Tough plastic spurs in 66, 68, 70, 72, 74 and 76T sizes. RRP \$2XX, or CNC machined steel spurs available in 65, 72 and 76T sizes. RRP \$3XX. Small Clutch Plate/Gear Adaptor fits 65 thru 70T spurs. Large Clutch Plate/Gear Adaptor fits 72 thru 76T spurs.

T-Maxx/2.5-Maxx Lightened Spur And Double-Disc™ Slipper Kit



RRP's NEW line of Lightened Spur and Double-Disc Slipper Kits for Traxxas Nitro and T/E-Maxx/2.5-Maxx trucks are designed to improve performance and increase reliability. This combo incorporates a machined steel or Super-Tough plastic spur, a Vented Aluminum Clutch-Plate/Gear Adaptor, 2 Slipper Pads and 2 Plates to deliver the adjustability you need and the increased performance that you demand. **Complete Slipper Kits** are available in the following sizes: RRP \$166 Slipper Kit with 66T Super-Tough plastic spur (Stock Size) for E-Maxx; RRP \$172 Slipper Kit with 72T Super-Tough plastic spur for Traxxas Nitro; RRP \$485 Slipper Kit with 65T Steel Spur for Traxxas Nitro; RRP \$472 Slipper Kit with 72T Steel Spur (Stock Size) for T-Maxx. Spurs, Clutch-Plate/Gear Adaptor and Slipper Pads also sold separately.

sponsored by

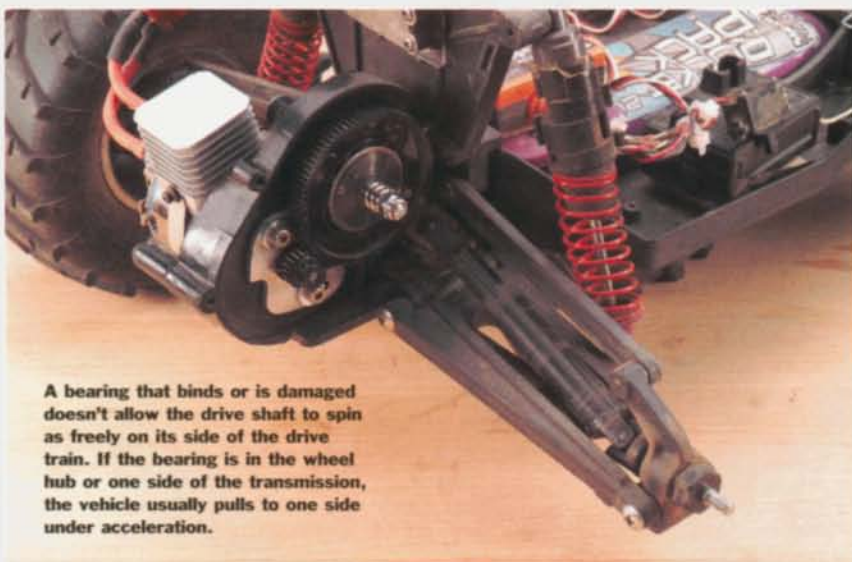
RRP
ROBINSON RACING PRODUCTS

Q DUBIOUS DRIVE SHAFT

I have a problem with my electric Rustler's right drive shaft. When I drive the Rustler, it pulls to the right, and when I lift it up and pull the throttle, the shaft rattles around. If I take the wheels off and run the motor, there isn't any rattle but the drive still locks up. I have tried to fix it by running with one wheel loose, both loose, both tight and so on. I took the transmission apart completely, made sure there wasn't any binding and put it together again. I did the same with my slipper clutch, and I even checked the screws that hold the transmission in place. I ordered a pair of MIP CVDs as a regular upgrade but don't think they'll solve the problem. [email]

Steve

A The Rustler has plastic, telescoping drive shafts, so they aren't likely to bend, and they could only wobble to a significant degree if they were really worn out (that doesn't happen too often). The likely cause of your problem is damaged bearings. Inspect the bearings in the rear hubs and in the transmission, specifically the ones on the left. A bad bearing will cause drag and binding on that side, and that would explain why it pulls to that side. You've already taken a good look at the transmission, and that probably would have revealed a bad bearing in that area, so check the left rear axle bearings. I think you'll find the cause of your problem there.



A bearing that binds or is damaged doesn't allow the drive shaft to spin as freely on its side of the drive train. If the bearing is in the wheel hub or one side of the transmission, the vehicle usually pulls to one side under acceleration.

T/E-Maxx/2.5-Maxx Steel Diff Gear Set



T/E-Maxx/2.5-Maxx differential gear set, includes: 1 beveled pinion gear, 1 beveled spur gear, 4 re-usable stainless steel Phillips head screws, 1 tube Associated Black Grease, and a shim kit for spider gears with 10 .003" shims, 2 sets needed per truck. RRP 8590

T-Maxx/2.5-Maxx Aluminum High Performance Brake Kit



New, lightweight aluminum high performance brake kit, includes bigger, more aggressive brake pads and steel backing plates. One piece vented rotor minimizes side-to-side wobble. Also fits newer T-Maxx, RRP 8562. Older style half shafts use Brake Kit RRP 8560.

DON'T SETTLE FOR SECOND!



www.robinsonracing.com

T-Maxx Vented Flywheels



Aluminum vented flywheels move air over clutch bell, improving performance and cooling. RRP 8551 Blue, RRP 8550 Natural Silver. NEW 2.5-Maxx Vented Flywheel, Blue Only RRP 8552.

T/E-Maxx/2.5-Maxx Replacement Pinion



This precision machined steel pinion fits RRP 8590 Diff Gear. RRP 8591

T-Maxx/2.5-Maxx Hardened Steel Clutchbells



CNC Machined from solid steel these bells are built to last. They take the 5x11 bearing (NOT included). Available in 19T, RRP 8119, 20T RRP 8120, 21T RRP 8121 and 23T RRP 8123.

ROBINSON RACING PRODUCTS

4968 Meadow View Drive · Mariposa, CA 95338 · Voice 209.966.2465 · Fax 209.966.5937

Q TERRA TROUBLE

I bought an Epic .18 engine for my Terra Crusher, but I have a couple of problems making it fit. I tightened the nut thing that's threaded onto the crankshaft, but the flywheel still slips, and the exhaust manifold doesn't fit. My previous engine was also a side-exhaust, but the screws holes are off by just a little bit. Any ideas?

Josh Daskam
Laconia, NH

A I just finished installing this engine in a Terra Crusher, so I'm familiar with your problem. The crankshaft on the stock Tamiya engine is 3mm shorter than a standard threaded crank. For most standard-crank engines, you'll have to shorten the crank by about 3mm. Also, the exhaust-mounting holes (used to attach the manifold) and the screw holes in the stock manifold are about 1mm wider than is standard. The standard

exhaust-mounting holes are about 27.5mm apart; the Tamiya .18's are about 28.5mm apart. It may not seem like a big difference, but that 1mm is enough to prevent the screws from threading in properly. The solution? Buy an HPI manifold (item no. 86037) and install it on your new engine. It's designed for the RS4-3 car and it lowers the tuned pipe instead of keeping it level with the exhaust port. It takes a little creativity to affix the big end of the tuned pipe to the chassis in this lower mounting position, but the entire installation is pretty easy.

As shown in the photographs, the Tamiya electric starter can be bolted to the Epic engine, so you can still use the same starting system. Alternatively, you can go with the lighter pull-starter that comes with the Epic engine.



Like most other small-blocks with a standard threaded crank, an Epic .18 engine will drop right into a Terra Crusher with minor modifications. The Tamiya electric starter fits the Epic engine perfectly.

RC10-GT Steel Combo



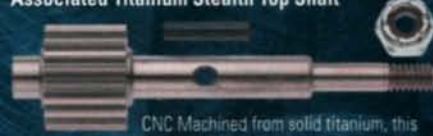
Precision machined from solid steel, then hardened, this 65T spur and 15T bell combo will last and last. RRP 2365

RC10-GT Hardened Steel Idler Gear



Cut from solid steel stock, this RC10-GT gear is lightened and hardened for super quiet precision and extra long life. Black tranny grease included. RRP 2213

Associated Titanium Stealth Top Shaft



CNC Machined from solid titanium, this super hard, super light top shaft will fit any Stealth transmission. RRP 1512

RC-10GT Hardened Steel Clutchbells



These steel Clutch Balls are CNC machined from solid steel then the teeth are machined on. This makes the part stronger with less gear "run out". Available in 14T thru 20T, 22T and 24T. RRP 22XX

www.robinsonracing.com

RC-10GT 32 Pitch Spurs



Precision machined from heat-resistant, super tough plastic, these spurs mesh flawlessly with our Clutchbells. Available in 63T thru 67T, RRP 2263 - RRP 2267.

Hardened Diff Gear



Hard anodized, precision CNC machined aluminum diff gear. RRP 1513 RC10-GT

DON'T SETTLE FOR SECOND!

TC3 Ultra 48 Pitch Spurs



Precision machined from heat-resistant plastic, these spurs mesh flawlessly with our pinions. Available in even numbers from 70T thru 80T, RRP 1670 - RRP 1680.



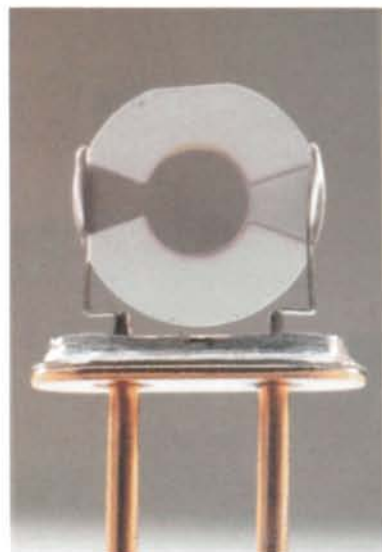
Q RABID RADIO

I finished building my new HPI R40 sedan and took it to an empty mall parking lot to run it for the first time and to break in the engine. I turned everything on and checked that the radio was working before I set the car down. Everything checked out OK, so I fired up the engine. As soon as I pulled the throttle, the thing went nuts and hit a curb. I was the only one around, so I know this wasn't caused by radio interference. A front steering hub broke, so I was done for the day. I went home to repair the car and to see whether I could discover the cause of my problem. I checked all the radio wiring for a short or a bad connection; I checked antenna wire and I checked for a loose plug—anything! Nothing was out of the ordinary, so I went to another parking lot to try again. Everything checked out before I fired up the engine, but when I started to accelerate, it went crazy again. This time, I caught it before it could smack a curb or a car tire, but I can't figure out what's going on. I think I checked everything I'm supposed to check, but I'm afraid to start the engine again because I don't want to trash my new car. [email]

Terry M.

A Two possible causes come to mind: metal-to-metal contact anywhere on the chassis has the potential to create radio interference. Radio glitching can happen simply when you're adjusting the fuel mixture, so it's easy to see how other loose metal-to-metal contact anywhere on the car might be a problem. Check that the pipe isn't touching the header; a gap of 2 or 3mm should be enough. Also be sure that the tuned pipe isn't rubbing against the chassis.

The only other likely cause I can think of is a damaged receiver crystal. If it's damaged, it may function intermittently on the bench. When the engine isn't running, a damaged receiver crystal might still allow the radio to function normally. Even starting the engine and letting it idle isn't always enough to reveal that a crystal is damaged; running the engine under load, however, causes vibration, and that's when a receiver with a damaged crystal is most likely to act up. I suggest that you try a different set of crystals to determine whether this is the cause of your problem. ■



The leads that are soldered to the quartz disc in the crystal can be loosened during a hard impact, and that can cause intermittent radio operation. If the quartz is cracked or broken in any way, it just won't work at all. A crystal like this one is toast. Even traces of dust throw the frequency out of tune. Left: an intact crystal in its case.



HPI Savage 21 Nitro Steel Combo



This new 52 tooth Spur and 14 tooth Clutch Bell are CNC machined from solid steel and then hardened for unmatched performance and durability. RRP 7052

NEW

Electric Car And Truck Pinions:

48P Absolute Series Pinions



Super hard, lightened and cut with unmatched precision. Great with any spur, but with an Absolute spur, even on-off noise is gone! Available in 48P in 16T thru 28T sizes. RRP 1416 - RRP 1428.

48P / 64P SuperLite Aluminum Pinions



They're lightened, hard coated and precision cut. Available in 48P in 16T thru 28T, and 64P in 24T thru 38T. RRP 30XX (48P) and RRP 31XX (64P). Only \$5.25

HPI Savage 21 Nitro Vented Flywheel



Aluminum vented flywheels move air over clutch bell, improving performance and cooling. RRP 7000

NEW

Stealth Spurs



These precision machined spur gears are super quiet. They're available in 48P in 60T thru 96T sizes, and fit any Associated or HPI electric car or truck. RRP 1860 thru RRP 1896.

48P Hard Nickel Plated Steel Pinions



These precision cut gears have an extremely hard coating that makes them really last. Available in 12T thru 35T. RRP 1012 - RRP 1035

ROBINSON RACING PRODUCTS

4968 Meadow View Drive · Mariposa, CA 95338 · Voice 209.966.2465 · Fax 209.966.5937

www.robinsonracing.com

HOTnew

NEW GEAR FOR THE NEW YEAR!

Well here we are, teetering on the edge of another new year. Before we know it, it's the holidays, Dick Clark freezing on some rooftop and two months of forgetting to put "2004" on your checks. It's also time for mass quantities of new RC gear! We've collected all the hottest gear for the year ahead. We spotted stuff at the Chicago hobby show, prodded manufacturers for sneak peeks and gathered up our press releases to bring you everything that's hot, new, now. Prices vary with dealer and may change, but who cares? Make Santa pick up the tab.

showstopper

This is the stuff that's sure to draw a crowd at the shop (or when you show up with it at the track).

zone favorite

The most-viewed items (at presstime) at radiocontrolzone.com earned this badge of honor.

tech breakthrough

New technology is always part of the ever-changing RC scene. These are the products that push the limits.

clicktrip

See more at rcaraction.com!

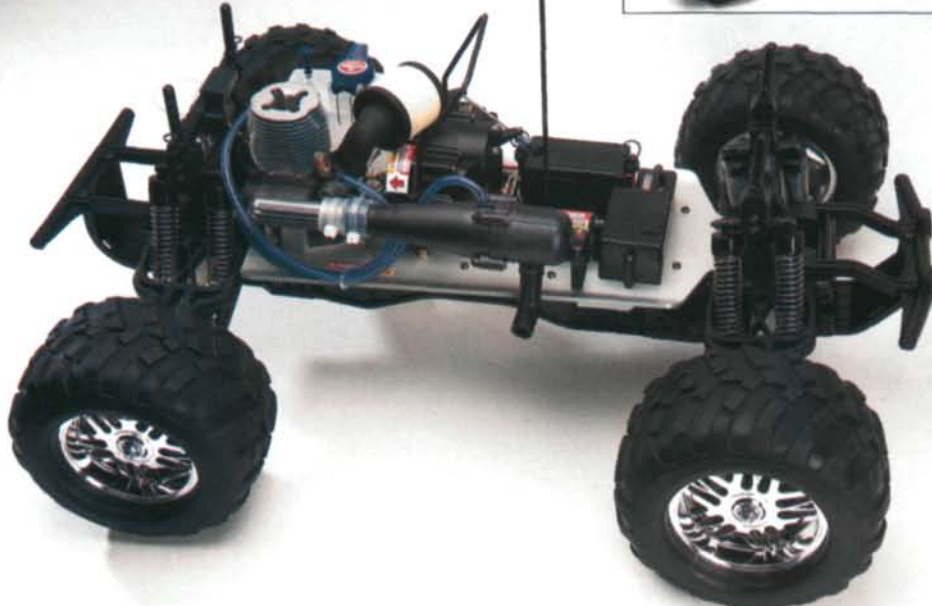
TAMIYA TNX

Tamiya's Terra Crusher follow-up is called the TNX and lops nearly 4 pounds off the original truck. That makes Tamiya's 40mph+ speed claim sound very plausible! Much of the weight saving comes from the smaller-diameter, thinner-carass tire—and we all know how all-important rotating weight is. Other major changes include an O.S.-built .18 engine and a new chassis that spans from shock tower to shock tower (as you'll recall, the Terra Crusher's chassis plate stopped short of the front suspension where a plastic nose section with an integrated electronics box took over). Electric starting returns, but reverse does not; expect a separate reverse kit to be made available as an option.

Item no. 43508; \$450 (est.).

showstopper

zone favorite



now 2004



showstopper

zone favorite

clicktrip

See the "Sneak Peek" online!

by the RC Car Action team

TEAM LOSI Mini-T

We gave Losi's category-defining off-roader the "Sneak Peek" treatment last month, and it will soon land in your local shops. Think Shrinking Ray meets Triple-XT; all the big-truck features are here, including a 3-gear tranny with ball bearings, slipper clutch, soft-compound tires with foam inserts, full independent suspension and a factory-finished body. A full-size transmitter completes the RTR package. These things are gonna be hotter than Pogs! Remember Pogs?

Item no. LOS80200; \$150.

TEAM ASSOCIATED Monster GT

The MGT has picked up a few new features since we last saw it, most notably, the dual-start system. You can use a hex shaft to fire it up, go-kart style via a socket in the engine's backplate, or you can yank the pull-starter to get the Thunder Tiger .21 rumbling. The big-block mill is getting rave reviews from the Associated guys, who say it's easy to tune and super-reliable (sounds right to us, from our experience with Thunder Tiger engines). The dual-tip exhaust seen on previous protos is gone—replaced by a more performance-oriented tuned-pipe setup—and the Monster GT will arrive totally RTR with a factory-finished body (flag holder included!). A complete review is in this issue.

Item no. PN 20500; \$839.99.



zone favorite

clicktrip

Action video online!



zone favorite

showstopper

TEAM LOSI Triple-X Brian Kinwald Edition 2

The BK2 features all of the usual upgrades you'd expect on a Kinwald Edition (titanium turnbuckles, ti-nitride shock shafts and hinge pins, graphite suspension and chassis components, threaded-body shocks and red-compound racing tires), but it's the less visible details that will really stand out on the track. Check it out:

- > Transmission is about 150 thousandths of an inch lower for a lower CG.
- > Drive-axle geometry has been reworked to minimize drive-pin/drive-cup friction.
- > New hub-carrier mounting options on the suspension arms.
- > Aluminum preload collars with O-ring "grabbers."
- > Kevlar spur gear.
- > Slammed body with cooling vents.

Item no. LosA0030; \$269.



zone favorite

XRAY M18

XRAY's new competition 1/18-scale car is one of the year's surprise hits. This proto has a plate chassis, but the final car will likely have a T1 Raycer-like semi-tub. Full independent suspension, shaft drive with gear diffs and full ball bearings are the big features. The M18 will be compatible with all HPI Micro RS4 bodies and wheels, and all sorts of upgrades will be offered.

Item no. to be announced; \$100 (rolling chassis).



TRAXXAS villain EX

tech breakthrough

Think of it as the "B-Maxx"! Traxxas' newest RTR boat borrows its dual-pack, dual-550 power system from the E-Maxx monster truck. A water-cooled version of the Novak-built EVX speed control pumps 14.4 volts through the motors to propel the Villain EX to speeds of over 20mph, and a completely sealed radio box keeps the included electronics dry no matter how hard you hit the waves.

Item no. 1502; \$329.

DURATRAH Evader ST and BX Pro

The popular Evader ST stadium truck and BX buggy have gone "pro" with a complete graphite makeover and new electronics. Check the specs:

- > Graphite chassis, suspension arms, shock towers, hub carriers, battery strap and chassis brace.
- > DuraTrax IntelliSpeed 12T racing ESC.
- > Team Orion 15-turn Havoc mod motor.
- > Hard-anodized-aluminum rear pivot plate, slipper plates and threaded-body shocks.
- > DuraTrax 2PL computer radio with 10-model memory.
- > Pro-Line racing tires.
- > 1-year Stress-Tech guarantee.

Item no. and price to be announced.





techbreakthrough

zone favorite

TEAM ORION Revolution v2 modified motors

Team Orion's Revolution mods truly revolutionize brush and endbell design. Instead of using brick-shaped brushes, the Revolution brushes are cylindrical. And instead of lying flat on the endbell to push against the comm, the brushes meet the comm at an angle, forming a "V" shape, hence the name "V2." Pure copper "brush control tubes" (you really can't call them "hoods") and a CNC-machined endbell give maximum electrical efficiency and aid cooling, and the surface-mounted capacitor system has an LED status indicator. Add features such as pattern winding, epoxy balancing and "intelligent" brush dampers, and the Revolution looks pretty, uh, revolutionary.

Various item nos. depending on wind; \$95.

techbreakthrough

FUTABA 2PL transmitter

Here's a smokin' radio deal. The 2PL has 10-model memory, dual-rate adjustable steering and throttle endpoints and a digital display—plus ABS braking with slow, medium and fast pulse modes! Ah, but what does it cost? Try less than \$100! Price will vary according to the included servo(s) or ESC, but no matter how you slice it, the 2PL is a steal.

Various item nos.; price varies with equipment included; \$85 to \$130.



OFNA 9.5 violator and Hyper 7 PCR

You can check out our "First Look" for all the details on OFNA's newest big buggies, but here's the short version: the Violator has a super-wide suspension for stuck-like-glue handling and a .26 engine for ground-shaking thump, but the Hyper 7 PCR is the first "Paul Coleman Racing" design. It's a race-worthy RTR with a bump-start 8-port Hyper Pro engine and a starter box.

Hyper 7 PCR—\$550 (est.); 9.5 Violator—\$500 (est.).



Hyper 7 PCR



9.5 Violator

TOTAL POWER SOLUTIONS Fusion v2 Assembled packs

Cells are cells, right? Pretty much, but the way they're assembled can make a big difference, says newcomer Total Power Solutions. The company sells only assembled packs and builds them using patented heat-sink battery bars and an automated soldering system that is claimed to reduce assembly heating temps by more than 200 degrees and to complete each solder joint in milliseconds. Club, Race and Team packs will hit tracks soon.

GP3300CLUB—\$60; GP3300RACE—\$70; GP3300TEAM—\$80.



techbreakthrough



HTM RACING Mammoth

Good name choice on this one; this thing is huge! The engine is big, too: it's XTM's latest .247 powerhouse. Eight threaded-aluminum shocks swallow any bumps the massive tires can't handle on their own; the 3mm chassis is roomy and rugged; and according to XTM, the truck's tuned exhaust system and 2-speed help the big rig to blast up to 50mph! The Mammoth is sure to be one of the biggest trucks in '04, but could it be the fastest?

Item no. 145615; \$400.

TEAM LOSI Triple-X4 Graphite Plus

Four-wheel fans, the wait for a G-Plus Triple-X4 is over! Along with all the molded-graphite factory options, the new X-machine has aluminum CVDs all around (see how thick the shafts are?), beefed-up front arms, a Kevlar spur gear, ti-nitride shock shafts and hinge pins, threaded-body shocks, graphite-plate shock towers and a new, cooler (literally) body. Nice.

Item no. LOSA0015; \$300 (est.).

showstopper

zone favorite



CORALLY Competition RTAS

Who would have guessed the Corally guys had RTR plans up their sleeves? Certainly not us! The competition company hasn't watered down its high-performance cars, but it has saved you the bench time. All include Airtronics Blazer radio gear with BL Racer ESCs, full ball bearings, rebuildable stock motors and Sanyo 2000mAh batteries. And since these are racecars, the BL Racer ESC features a reverse-lockout mode for race days. Three RTRs are offered: the CCT direct-drive tourer (shown above); F1 open-wheeler and 1/12-scale SP12M.

Item no. and price to be announced.

POWER PLAYS

Let's of big doings in the engine world! More power, lower prices and some new brands for '04. Check 'em out.

TEAM ASSOCIATED/O'DONNELL .12 racing engine

zone favorite

Thirty-three-year nitro veteran Steve O'Donnell's new .12 rear-exhaust racing engine is claimed to combine the best materials with the racing specs that have earned O'Donnell numerous national titles in many forms of racing. The ROAR- and IFMAR-legal engines will be sold in on-road and off-road versions with standard or SG-type crankshafts and slide or rotary carbs. The double-bushed, air-foil-shaped, heavy-duty connecting rod should outlast a season of long A-mains, while ABC construction and a CNC'd bar-stock piston also enhance durability.

Item no. and price to be announced.



NOVAROSSO CX12R2N

The CX12R2N now calls Adam Drake's Triple-XNT home. The side-exhaust engine has a standard crank, a 3-port sleeve and a rotary carb. According to The Drake, it's the most drivable engine in the Novarossi lineup; it offers smooth power delivery throughout the rpm range and very strong top-end speed for long straightaways.

Item no. and price to be announced.

REEDY platinum mod motor

Reedy's new Platinum mod motor features the latest Quad-magnet Four-field C4 technology and a standard 7.5mm comm with no. 729 standup brushes. Other features include a 1.4mm motor can with a HiFlo vent, installed capacitors, dual ball bearings, color-coded brush heat sinks, an improved brush-vibration-damping system, heavy-duty solder tabs, a drill- and epoxy-balanced armature and more. Available in single and double winds.

Item no. varies with wind; \$90.



THUNDER TIGER Ducati 999R Testastretta electric motorcycle

This isn't a re-dressed FM1e; it's Thunder Tiger's version of Italy's desmodromic liter bike. The red sled rolls out on a redesigned aluminum chassis with a realistic, cast-aluminum swing-arm and wheels, a telescoping fork mono-shock rear suspension and a real chain drive. The rider guy is fully painted for you, and the bike is RTR complete with Jaguar radio and ESC.

Item no. 6528-F; \$350 (est.).



KYOSHO Mini-Z MR-02

Kyosho's class-defining Mini-Z has been redesigned for more performance. The MR-02 chassis holds the batteries lower, has the motor in the middle and features an easy-to-swap steering drag link for quick toe-in changes without exposing the servo gears. Like all Mini-Zs, the MR-02 series wear gorgeous, static-model-quality shells—now gloss-coated with a super shine. A full-size transmitter is included, and all Mini-Zs are sold fully finished and RTR.

Item no. varies with body style; \$170.



TEAM ORION Wasp .18

"Swap your puny RTR .12 or .15 engine for the Wasp .18 and rule your neighborhood," says Team Orion. Sounds like one of those Charles Atlas comic book ads! But it looks as if Orion can back it up, since the Wasp line is pretty hot. The new "big" small-block comes in pull-start and bump-start versions with standard shafts and rotary or slide carbs, and you can also get the Wasp .18 with a Traxxas Maxx-style IPS shaft.

Item no. depends on configuration; \$155 to \$165.



PEAK RACING diablo small-blocks

The Diablo small-blocks are Peak's first venture into nitro power, and they look race-ready. Race-legal .12s and Outlaw .18s are in the mix—all with durable ABC construction, oversize cooling heads and precision carburetors. Rear- and side-exhaust versions will be available with slide or rotary carbs and a standard, threaded shaft. The .18 version is designed for the Traxxas T-Maxx 2.5 and has the correct IPS-style shaft.

Item nos. vary with exhaust and carburetor configuration; \$220 to \$240.



TRINITY/SIRIO S21BK "Kanal Edition" .21 buggy engine

The specifications haven't yet been completely ironed out, but there's no question that Sirio will be the engine of choice for the 2004 IFMAR Off-Road World Championship in Sweden and the upcoming season. This special Kanal Edition engine features new port and crank timing for increased horsepower, a 2-needle composite/steel carb with replaceable restrictors and a 5-port sleeve—plus more stuff yet to be revealed.

Item no. and price to be announced.



CARISMA M14 and F14 RTR 1/14-scale Ferrari series

Carisma's Enzo, Modena, F50 and F14 open-wheelers have die-cast-like detail in 1/14 scale—big enough to go outside but small enough for indoor action. The 2WD chassis features a T-bar rear suspension, a bevel-gear diff, an RS-380 motor and an electronic speed control. All the Carisma Ferraris include 27MHz transmitters and a rechargeable 7.2V pack, and they're RTR straight from the box.

Item no. 93368 (Enzo Ferrari), 93568 (Ferrari Modena); 93668 (Ferrari F350); \$100.

HPI RACING RTR Nitro RS4 3 EVO RTR

First came the Nitro RS4 3 RTR and then the "SS" kit and now the Evo—HPI's hottest RTR 3 Series yet. The parking-lot-proof shaft-drive system and swing-out electronics tray return and are now joined by the latest T-15 Roto-Start engine, a 2-speed tranny, chrome wheels and a completely finished body.

Item no. 10001 (with BMW M3 GT body); 10002 (with Dodge Viper GTS-JR Body); \$300 (est).



SCHUMACHER Menace 21

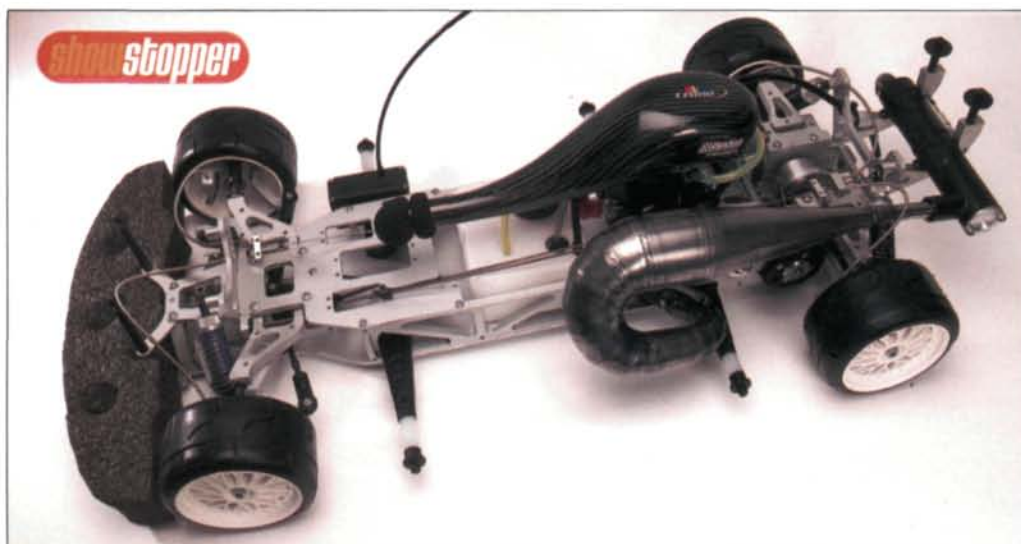
We "First Looked" the Menace for the September 2003 issue, and Schumacher is just about ready to unleash its over-powered 4WD stadium machine. With a big-block .21 engine and a 3-speed tranny, the Menace 21 may very well cross the 70mph barrier as easily as the Fusion, its road-going stablemate. The truck has been beefed up for big-block action, and it features a 3mm chassis, a single-belt 4WD system, full ball bearings, MIP CVDs, heavy-duty ball diffs and a shaft-started Thunder Tiger Pro .21 engine. The Menace will be sold assembled without a radio as an "almost-ready-to-run" as well as fully RTR with Airtronics gear.

Assembled Menace w/out radio gear \$429.
RTR Menace \$499.

SVM CRONO MK6

Whoa! Look at this bad boy. With that motocross-look pipe, burly carbon-fiber intake and Ergal-aluminum everything, this can only be SVM Crono's competition 1/5-scale machine. That's a 4.8hp Zenoah engine nestled between the frame rails, and 4-wheel disc brakes do the stopping. Not cheap, but do you want the best or not?

Item no. and price to be announced.



TRINITY 2004 P2K2 PRO

Trinity has updated its speediest stock motor with a D5-style endbell. The capacitors are soldered directly to the circuit board that caps the endbell; brush alignment has been improved; and the brush shunts are soldered to ensure the lowest resistance. No change in price or part number, though. Thanks!

Item no. to be announced; \$30





zone favorite

TAMIYA Full-option F201

The popular F201 chassis kit is available for a limited time with a wide range of factory option parts as well as new, thicker suspension arms. The Full-Option kit is loaded with good-looking, performance-enhancing anodized-aluminum parts and will also include a screen-printed "graphite" body. The aluminum parts list includes ball-bearing rocker arms, threaded-body shocks, body mounts, a chassis brace and a front swaybar plate.

Item no. to be announced; \$250 (est.)



KYOSHO FW-05R

We've seen shaft drive move into some of RC's fastest electric tourers, and if the performance of the FW-05 is any indication, it may be taking over the nitro scene. Kyosho's new shaft-drive sedan is the flat-out fastest on-road race machine ever, and that's saying a lot, since the company's belt-driven V-One-RR is a world-class machine. We oughta know; both cars are tested back to back in this issue!

Item no. 31581B; \$400.



THUNDER TIGER SSK RTR Nitro Monster Truck

This 1/10 monster has full-time 4WD and Thunder Tiger Pro-15BXS pull-start power, and it includes an Ace Jaguar radio system. Lots of features, too, including a factory-finished and decaled body, universal-joint front shafts, an aluminum manifold and tuned pipe and supersize tires on chrome wheels. Look for plenty of factory options for the SSK soon!

Item no. 6710 F; price to be announced.



HPI RACING RTR Nitro MT2 RTR

With those screaming orange graphics, it's hard to miss the new MT2! HPI's revamped 4WD nitro truck has Savage-style suspension geometry for extra-long

travel and super-plush action. The T-15 engine is new and fires up go-kart style with HPI's Roto-Start system. The skidplate-style bumper will help the MT2 get up and over just about anything, and the RS4 3-series chassis configuration makes maintenance easy as it protects the onboard gear.

Item no. 10401; \$360.

zone favorite



TEAM ORION Orbital 2R Pro-BB

Orion's Orbital-series mods are completely adjustable and rebuildable, and they're ready to install, thanks to the included bullet connectors and surface-mounted capacitors. The 2R Pro BB model spins on ball bearings for maximum rpm and efficiency, and a variety of winds are available to suit your track and speed needs. Available in triple-winds—10 to 19 turns.

Various item nos. depending on wind; \$50.



TEAM ORION Motor Performance Monitor

Use Team Orion's Motor Performance Monitor to check motor rpm and current draw and break in motors and power commutator lathes. It pumps up to 13 amps, keeps cool with two internal fans and can hold up to 10 runs in its memory for playback later. The blue-backlit LCD adds to the psych-out factor; looking fast in the pits counts!

Item no. not yet available; \$150.



There's a ton of Maxx gear coming in 2004—just like every other year since the Maxx was introduced!

MAXX STUFF!



PRO-LINE H2 Hummer SUT concept

Those Pro-Line guys don't waste any time on this stuff! Door handles, ventilation details, grill, headlights, taillights ...; every detail on the real deal is captured in tough, 0.060 Lexan and is ready for your Associated Monster GT. Overspray film, window masks and decals are included.

Item no. 3165-00; \$32.



NOVAK ELECTRONICS HV-Maxx brushless motor & ESC for Traxxas E-Maxx

Novak's newest brushless motor and ESC combo has been customized for the Traxxas E-Maxx; it replaces the truck's dual brushed motors with a single, state-of-the-art brushless powerhouse. The HV-Maxx ESC has the same "footprint" as the stock EVX controller for a drop-in installation; it handles the required 12 cells, and it keeps you in control with proportional brake and reverse. There's even a Locked Rotor Detection circuit that prevents anything from being damaged if the motor stalls. Direct-solder tabs on the motor and ESC make it easy to replace the power wires, and the ball-bearing motor is protected against thermal overload.

Item nos. 3220 (ESC), 3410 (motor), 3020 (ESC and motor combo); price to be announced.

TAMIYA XBG Team vodafone AMG Mercedes

This beautiful Tri-Star ride is the first in Tamiya's RTR nitro tourer line, which gets the designation "XBG"—for eXpert Built Gas, we're guessing. The 100-percent factory-assembled car features a Tamiya FS12-SS engine, an enclosed radio compartment and an Active Cooling System (ACS) that forces cool air up to a fan and then over the engine case. The bulletproof chassis and drive train are perfect for parking-lot racing, and the factory-finished body is first-rate.

Item no. 43510; \$367.



PRO-LINE Power-stroke & By-Pass shock system

This system from Pro-Line offers two types of shocks for each suspension arm. One shock is a coil-over unit while the other is designed just for damping. The coil-over shock features independent primary and secondary springs with a built-in travel limiter. The threaded-aluminum shock body is oversize at 15.75mm and allows quick, fine adjustments of the truck's ride height. The By-Pass shock has internal valves to deliver "position-sensitive damping." As the piston moves up through the shock, damping is progressively increased. This could be the ultimate setup for 8-shock trucks! The PowerStroke performance shock kit, includes 4 coil-over shocks and 4 By-Pass shocks.

Item no. 6025-00; price to be announced.



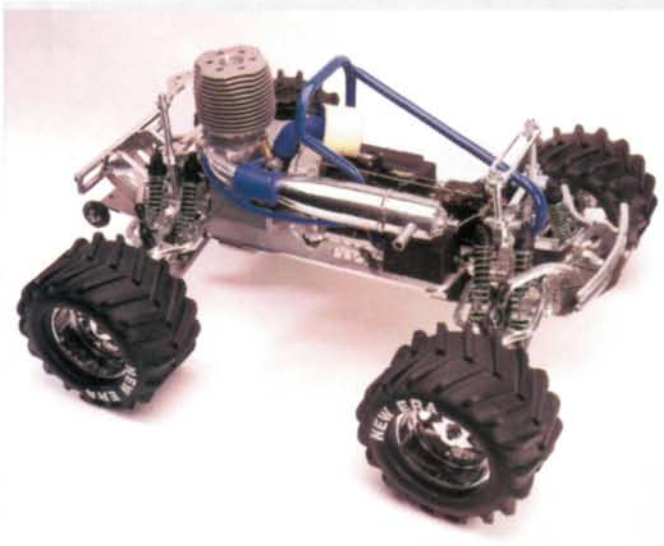
zone favorite
showstopper
tech breakthrough



PARMA X-citer

Parma's new X-citer body has a radical racing look and is sure to add excitement to your Traxxas Maxx. It's molded out of durable 0.050-inch-thick Lexan and also includes window masks and decals.

Item no. 10101; \$26.



NEW ERA MODELS PRO BX70 MAXX conversion kit

Oh, you installed a .21 in your T-Maxx, you say? Big deal! Try this .70 on for size. Yes, that's exactly what you can tell the guys at the shop with some help from New Era. A 4.7mm aluminum chassis, engine mounts, clutch-nut assembly and super-duty lower braces let Thunder Tiger's mongo Pro BX70 drop into your Maxx, and an included rear shock tower allows starter-shaft access. As for all the other goodies on this photo truck ... call New Era!

Item no. TRM170, \$185.50.

PRO-LINE 40 series spinner

Ballet style comes to RC! The spinner craze has made it to the monster truck world thanks to Pro-Line. The polished-aluminum 40 Series Spinners are eye-poppers; they make the wheels look motionless as the truck takes off (freaky), and then make them look as if they're still spinning when the truck has stopped (also freaky). And they spin, like, forever. Somebody call Funkmaster Flex!

Item no. 6026-00/pack of 2;
price to be announced.



DURATRAK Micro street force

DuraTrax is now into the sub-1/12-scale scene with the Micro Street Force—an 1/18 scale 4WD micro-machine. Completely assembled, factory-painted, and RTR with a Futaba-built radio, the latest Street Force has all the latest micro-machine features, including gear diffs, full ball bearings, a reversing ESC and independent front suspension. DuraTrax even throws in a 600mAh battery and wall charger.

Item no. DTXD10; \$180.



PEAK RACING vantage modified motors

The Peak guys have their own version of the Orion Revolution V2 design but with the same unique brush setup. The cylindrical brushes slide into pure copper "control tubes" to meet the comm at an angle, and the machined-aluminum endbell keeps the critical hardware running cool. Pattern winding, epoxy-balancing and surface-mounted capacitors with LED are also standard.

Various item nos. depending on wind; \$95.



PRO-LINE 40 series Mambo wheel

Big, chrome and wide. That's either a description of a '59 Cadillac or Pro-Line's new Mambo wheels (actually, it's both). Their mirror-bright chrome finish and cutting-edge looks scream style, but they're built for abuse. Everybody Mambo!

Item no. 2670-01; \$22/pair.



TAMIYA TG FUEL

Tamiya's premium TG-Fuel was previously available only in Japan, but now you'll be able to buy it in the U.S. in 25- and 35-percent-nitro blends and in 1-liter and 1-gallon metal cans. According to Tamiya, it will be competitively priced and should be available at your local hobby shop by the time you read this.

Item no. and price to be announced.



HPI savage 25

The 1/8-scale Savage 25 is HPI's most powerful RTR monster truck ever. Its Nitro Star S-25 engine has about 20 percent more displacement than the previous engine to provide more torque and top speed—over 40mph with the included high-speed gearing set, says HPI. The Savage 25 is also equipped with many upgrades that weren't included with the original Savage 21, including Roto-Start, a 3-shoe clutch, stiffer shock springs and new red, silver and graphite graphics.

Item no. 832; \$429.

CORALLY Assassin

The Assassin has been making the show circuit for a while now, and it looks just about ready to hit the shops. The "killer" car's biggest feature is its variable chassis setup; this can be built as a single-belt or a dual-belt configuration with mid-motor or rear-motor placement. The other big feature is its quality. The graphite, Delrin and aluminum construction is first-class all the way.

Item no. and price to be announced.

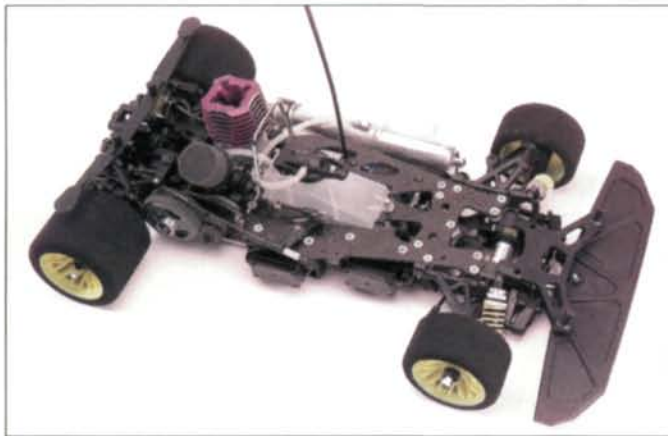


SERPENT 950R

The 950R is the successor to the recently released Serpent 950, which is already a European and U.S. national champion. According to Serpent, the 950R represents an additional year of R&D and refinement at the highest level of worldwide competition. New features include:

- > Four roll-center positions.
- > Throttle servo mounted flat for lower CG.
- > Adjustable front belt tension.
- > Narrower chassis plate.
- > 4mm wheelbase adjustment range.
- > Front end is 4mm narrower for better steering.
- > New receiver-mounting position.

Item no. to be announced; \$700 (est.)



HITEC HIS-03MK receiver & competition servos

The new HIS-03MK single-conversion, 3-channel receiver uses Hitec's new "Intelligent Pulse Decoding" technology. The FM receiver also has a throttle-preset option that acts like a fail-safe in the event of signal loss. On the servo front, Hitec has added the high-torque HS-635HB (this puts out 83 oz.-in. of torque with a 0.15-second transit time) and the monster HS-75BB (with 183 oz.-in. of torque for big-scale racing).

Item nos. 24927 (27MHz), 24975 (75MHz); \$55; HS-635HB servo, \$35; HS-755HB servo, \$30.



TRINITY

TOURING CAR RUBBER & FOAM TIRE WARMERS

Adjusts front and rear tire temperatures separately or left and right for oval racing

Temperature range from 01°C to 98°C (33°F to 208°F)

Fits a maximum tire diameter of 65mm (2.559")

Works with rubber or foam tires

Power with a 8 or 10 cell battery pack or a 12v power supply



RC6078

DIGITAL HEAT

Super Tire Warmers

www.teamtrinity.com

© 2003, Trinity Products Inc.

TRINITY 800 & 1200mAh receiver packs

Trinity has raised the limits of receiver (RX) battery capacity to 1200mAh for "regular-size" RX packs, while the AAA packs have been bumped from 750mAh to 800; every second of track time counts! Power-hungry high-torque servos and receivers use up more battery power, so the extra capacity of these new packs is insurance against losing because of a loss of power to the receiver. Various cell

configurations are available to suit all types of vehicle.

Item no. varies with type; \$25 to \$30.



RC SCREWZ PRO wrench set

RC Screwz' Pro Wrench hex driver sets have large-diameter, knurled-aluminum handles and include a "Speed T-Handle" that provides extra torque to get out stubborn screws. The metric wrenches' stripe pattern indicates their sizes; each stripe represents 1mm. non-metric wrench sets are also available.

Item nos. scrprow001 (metric), scrprow002 (standard); \$55 to \$60.



POWER RACING PRODUCTS Swift RTR

The Power Racing Products guys claim their new Swift RTR buggy is truly race-ready. It even includes an Airtronics MX3 FM computer radio system! A light, CNC-machined chassis, carbon-fiber radio tray and front brace, CV axles, threaded-aluminum shocks, silicone-filled diffs and 3-shoe racing clutch (just to mention a few) all come as standard equipment. Consider its price, and the package is even sweeter.

Item no. to be announced; \$450.



KillerB

Especially for the Associated B4



Reference

TRI39300



You can never be too stylish, and there's plenty of RC fashion on the way in 2004. Your car's makeover starts here!

TRINITY Blue aluminum option parts for Associated B4 and T4

Trinity's blue-anodized aftermarket parts for the B4 also fit the new T4 stadium truck. The zero- and 1/2-degree hub carriers, shock bushings, front bulkhead, front hinge-pin brace, servo mounts and hardened slipper plates fit both machines. Only the battery brace is different; individual models are offered for the truck and buggy.

Various item nos.; \$5.99 to \$34.99.



PROTOFORM 200mm BMW M3 GT3

Protoform's BMW M3 GT3 body was inspired by the M3s that dominated at the 24 Hours of Nurburgring. The body authentically captures the awesome looks of the M3 with its flared fenders and aggressive wing package with bolt-on wing struts that can be customized. Like all Protoform sedan bodies, the M3 includes protective film, window masks, decals and an add-on wing.

Item no. 1462-00; \$26.



PRO-LINE performance wing kit

Even if your current buggy wing isn't thrashed, toss it! Pro-Line's wing is a style must-have; those side-dam number plates are too cool to pass up. Wing buttons and numbers are included, and a molded-in grid on the wing's underside makes it easy to drill the mounting holes correctly.

Item nos. 6024-02 (yellow), 6024-04 (white); \$14.



HOT WORKS chrome wheels with brake rotors

Whoa! These are traffic-stoppers! The brake rotor replaces your tourer's drive hex for a realistic big-brake look, and matching wheel nuts are included. All-chrome and painted-center styles are available in two spoke patterns and six colors.

Item no. varies with style; \$24.99/set of 4.



HHH-MAIN stick-on graphics

Why paint when you can peel and stick? XXX-Main's decals go inside the shell before you paint it, so crashes can't harm their good looks. The flexible vinyl conforms to curves, and lots of styles are available. Already have a painted body? XXX-Main has "old-fashioned" stickers for the outside, too, and printed on the same high-flex vinyl.

Various item nos.; \$8.49.

Continued from page 84



zone favorite

showstopper

NEW ERA MODELS Nitro drag chopper

With its powder-coated chromoly-tube frame, wheelie bar and Lexan fuel tank and fenders, New Era's chopper looks as if it came straight from the Discovery Channel. The belt drive is real chopper-tech; billet-aluminum parts lend a custom look, and the meaty slicks are super-soft for maximum grab. The engine isn't included. Where's the Jesse James action figure?

Item no. NDC101; \$500.

LAP quantum competition 2



The Quantum Competition 2 is ultra-small and can spin motors with as few as 5 turns. "Reactive Frequency" tailors the drive frequency as you drive, automatically switching to lower frequencies for punch out of corners and to higher frequencies for more efficiency on the straights. And it's also totally waterproof; it will actually run underwater!

Item no. 8083; \$160.

tech breakthrough

EPIC touring-car & stadium-truck bags

Keep everything clean with these new car bags from Epic. They keep your RC car clean when it's stored in your workshop, and they help keep the inside of your big car clean on the way home from the track. The bags are a generous size to allow plenty of space for touring cars and stadium trucks.

Touring-car bag—EP1700; \$40.

Stadium-truck bag—EP1701; \$40.



HUDY ProfiTools

Hudy ProfiTools have the same precision tips as Hudy's Professional Tools and lightweight molded handles. The tips are secured by a machined duraluminum collar, so they stay put but are easy to remove for replacement (that is, if you ever wear the spring-steel tips out; they're tough!). A full line of hex, Phillips and flat-head drivers are available.

Item no. varies with style; price to be announced.



DU-BRO pit stop

At last! We can stop jamming our tuning screwdrivers, glow starters and fuel bottles into our pockets! Du-Bro's Pit Stop includes a large (800cc) fuel bottle, a T-handle glow driver, a Kwik Start glow-plug igniter and charger, a carb-tuning screwdriver and a Kwik-Stop exhaust plug. There's also a Maxx version designed to carry the EZ-Start 2. All of the accessories are neatly arranged on the caddy, and the carrying handle makes it easy to tote from the pit table to the track.

Item no. depends on color and type; Pit Stop w/Kwik Start—\$49.95, Pit Stop only—\$29.95.

TAMIYA Blackfoot Xtreme

The Blackfoot is back! This new "Xtreme" version has been updated with a Wild Dagger gearbox to give the truck better balance for off-road action. Fully independent suspension, coil-over shocks, an updated version of the classic, "hard" body and chevron-spike tires on red wheels complete the ageless Blackfoot look. No RTR option here; this classic is a kit, just like the 'Foots that came before it.

Item no. 58312; \$170 (est.).



zone favorite



TAMIYA 1/10-scale Twin Detonator

The Twin Detonator is loosely based on the Wild Dagger chassis and has the Dagger's best feature: dual motors! Everything you need to deck out the body to look like the one in this photo is in the kit, and the truck's friction shocks, super-burly transmission gears and heavy-duty diffs are built to take abuse.

Item no. 58309; \$170 (est.).

tech breakthrough



PARMA Nitro speed scent

What if nitro exhaust could smell like bubblegum? Someone at Parma dared to ask that question, and Nitro Speed Scent was born. Aromas include Gonzo Grape, Smokin' Coconut, Very Cherry, Bullet Bubblegum and Racin' Root Beer. Each 1-ounce bottle treats 7 to 8 quarts of nitro. Just remember, though, that even though your fuel may smell tasty, you still can't drink it!

Order by scent; \$6.

THUNDER TIGER EB-4 S2 Rally Game

Built on the rugged EB-4 platform, the S2 Rally Game is designed for serious on- and off-road racing fun. It comes with your choice of a Subaru Impreza WRX or Citron Xsara screen-printed body and arrives 100-percent ready to run.

Item no. to be announced;
\$500 (est.).



NEW ERA dual-engine conversion kit for HPI Savage series

Two engines are always better than one! To make your Savage look like this beast, you'll need a spare engine, a flywheel, a clutch assembly and a clutch bell; New Era supplies the rest. Longer side plates, engine mounts, an engine plate, an extra-long titanium rear drive shaft, a fuel tank and mount, fuel tubing and servo linkages are all in the kit, and the entire thing is bolted together without mods—slick.

Item no. HSV121; \$250.

PARMA Faskolor compressor

Parma has added a compressor to go with the F1 airbrush set. It features a moisture trap, quiet operation, a regulator for adjusting output and a maximum operating pressure of 60psi. It includes an airbrush stand, a carrying handle and a self-coiling hose.

Item no. 40259; \$350.



ASSOCIATED B4 RTR

Want a B4 without the building? Here it is—the Associated RC10B4 in ready-to-run mode, right down to a finished body, an LRP Runner speed control and genuine Airtronics radio gear. Associated uses the same American-made B4 kit parts to assemble the RTR version, and blue-anodized shocks are standard. You get B4 kit quality and upgrade-ability minus the wrenching!

Item no. 9050; \$250.

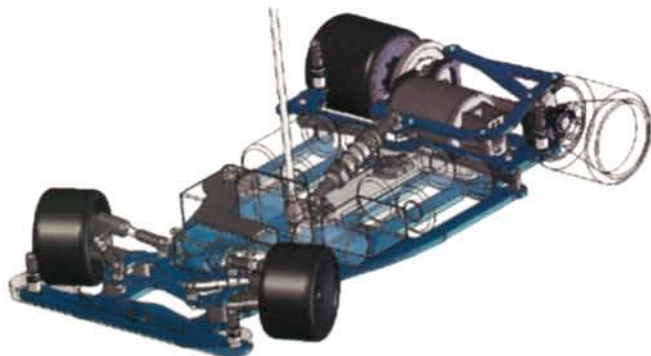


TRINITY Reflex 12 oval and on-road cars

The Reflex 12 is designed to have the lowest center of gravity in its class; 1/12 cars already have the lowest CG among RC cars, but the Reflex 12 takes it to the next level with a handful of innovations that should make it extremely competitive.

- > Super low-profile motor pod designed for use with low-profile tires.
- > Center-mounted motor is 0.050 inch lower.
- > Adjustable battery position.
- > Lightweight diff-hub assembly with "large"-style diff rings.
- > Balanced clamping hub.
- > Adjustable aluminum body posts.

Item no. to be announced; \$290 (est.).



TAMIYA polycarbonate paint

We're excited about paint? Yes, we're excited about paint! Now, when the Tamiya manual tells you to paint your Impreza "PS-16" blue, you'll actually be able to go to the shop, grab a can of PS-16 and get a perfect match every time. In fact, no matter what you're painting, the full line of colors will look good on any shell. Good stuff!

Item no. depends on color; \$5.



THUNDER TIGER EB-4 S2 super combo RTR

Thunder Tiger's popular Pro buggy is now available RTR with a Pro-21BX(P) pull-start engine and Ace Jaguar radio gear plus a high-torque steering servo, Bulldog tires, an aluminum tuned pipe and manifold and a vented flywheel. Heavy-duty Ergal shock towers, steering slider and center diff top plate are standard, too.

Item no. 6223-F; price to be announced.



PEAK RACING stratos R motors

Peak's machine-wound Stratos R mods are ready to race; they have surface-mounted capacitors, adjustable timing, dual ball bearings and the same hardware as Peak's best Carrera motors. The Stratos Rs are fully rebuildable, and installed bullet connectors make them easy to drop into any electric ride. Available in triple winds with 10 to 19 turns.

Item no. varies with wind; \$40.





HOBBYENGINE subaru impreza WRC

HobbyEngine's shaft-drive beginner-mobile is a full 1/10 scale and sold completely RTR as you see it here. Lots of features, too, including 540 power, ball bearings, an electronic speed control and independent suspension with friction shocks.

Item no.—0301;

price to be announced.



RC SCREWZ stainless-steel screw kits

RC Screwz 100-percent stainless-steel screw sets include all the screws, nuts, washers and setscrews required to replace every stock fastener along with plenty of extra hardware (you know you're gonna drop some—right?). A complete set of the wrenches you need and a reusable storage case are also included. Sets are available for all the popular vehicles; the HPI Savage kit is shown here.

Item no. hpi1019; \$24.

DURATRAK Micro RS4 & Mini-Z carrying bag

DuraTrax offers these carrying bags to keep your minicars and microcars stored safely with the transmitter. One size fits DuraTrax's new Micro Street Force and HPI's Micro RS4, and the other will hold Kyosho's Mini-Z line of cars. The bags are made of durable nylon, and two, foam-cushioned compartments holds the car and the radio. Use the small pocket to store extra batteries, tires and other accessories. A padded lid is securely sealed with a double pull zipper, and the bags have a nylon carrying handle and a removable shoulder strap.

Item nos. DTXP2025 (Mini-Z); DTXP2027 (Micro RS4); \$20 (est.).



HITEC CG-335 Pro charger

Hitec's latest charger adds the flexibility of NiMH peak-detection circuitry to the CG-335 model. In addition to its safe NiMH charging capability, the Pro model has an LCD display and is fully adjustable. It can charge glow igniters, 1 cell or as many as 24 cells and has full input/output polarity protection.

Item no. 43335; \$100.



XRAY T1

This mini touring car is a scaled-down version of XRAY's T1 touring car. The T1 Mini is a real racer that accommodates a 4-cell battery pack and standard electronics, batteries, motor, wheels and tires. Duraluminum bulkheads, full graphite and all the adjustability of the T1 series are on board.

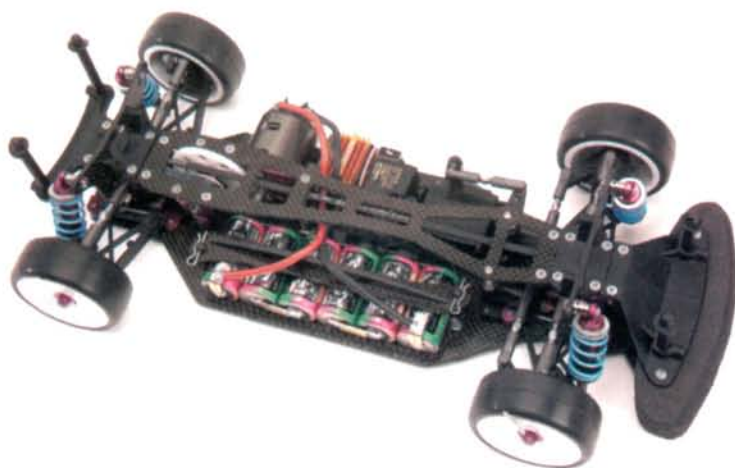
Item no. 300009; \$225 (est.).



SPEEDMIND star-shaped pinion holder

SpeedMind's pinion caddy can also count teeth! Slide your pinion down the scale until it stops, and then read the tooth count (it works for 48- and 64-pitch). The numbers are laser-etched so they can't be rubbed off. When you aren't testing the tooth counter (it worked every time for us), the star-shaped caddy holds 11 pinions.

Item nos. GW038B (blue), GW038P (purple); \$26.



SCHUMACHER Mi2 competition touring car

Schumacher's Mission follow-up is all new and now features C-hub/camber-link suspension, an adjustable battery tray and an optimized, ultra-low-friction belt system. Teemu Leino just won the Scandinavian Nats with his prototype Mi2, and Euro hotshoe Jonas Andersson finished seventh at the CS Electronics Championships. Since when is seventh a big deal, you ask? It's a big deal when you know that Jonas received the Mi2 only three days before the event!

Item no. to be announced; \$300 (est.).

SPEEDMIND K-28 Impact Master 2004 color wheel series

With a name like "Impact Master," they gotta be tough! According to SpeedMind, the Color Wheels Series

have the right blend of strength and "good flex" required for racing. The 24mm, BBS-type wheels are available with white or chrome rims, with blue, red, yellow, or black spokes and in all chrome.

Item nos. GT1904 (chrome); GT2904 (color); \$20/set of 4.



SPEEDMIND engine specialty tools

Nitro tuning is easier with a few engine-specific tools such as these from SpeedMind. There's a manifold spring and a clip wrench, and screwdrivers with 3, 4, and 5mm tips to suit carb needles, Italian head bolts and other slotted screws. The 3mm screwdriver has a shaft that can be adjusted from 150mm to 190mm to suit your carb-tuning needs. All the shafts are black-oxide-coated inhibit rust and enhance strength.

Various item nos.; \$17 to \$25.



SOURCES

ASSOCIATED see Team Associated

CARISMA distributed by Horizon Hobby Inc. (800) 338-4639; horizonhobby.com.

CORALLY USA; distributed by Specialized RC Intl. (407) 681-5905; corallyusa.com.

DU-BRO PRODUCTS (800) 848-9411; dubro.com.

DURATRAX distributed by Great Planes Model Distributors (217) 398-6300; (800) 682-8948; duratrax.com.

DURATRAX/O'DONNELL distributed by Great Planes Model Distributors (217) 398-6300; 800-682-8948; duratrax.com.

FUTABA distributed exclusively by Great Planes Model Distributors (217) 398-6300; 800-682-8948; futaba-rc.com.

HARDCORE RACING COMPONENTS (661) 294-5032; racinghardcore.com.

HITEC RCD INC. (858) 748-6948; hitecrd.com.

HOBBICO distributed by Great Planes Model Distributors (217) 398-6300; (800) 682-8948; hobbioco.com.

HOBBY ENGINE (852) 3100-0138; info@hobbyengine.com.hk.

HOT WORKS distributed by Schumacher USA (813) 889-9691; racing-cars.com.

HPI RACING (949) 753-1099; hpiracing.com.

HUDY SPECIAL PRODUCTS distributed by Serpent Inc. USA (305) 639-9665; hudy.net.

KYOSHO; distributed by Great Planes Model Distributors (217) 398-6300; (800) 682-8948; kyosho.com.

LRP distributed by Team Associated (714) 850-9342; teamassociated.com.

NEW ERA MODELS (603) 888-4453; neweramodels.com.

NOVAK ELECTRONICS INC. (949) 833-8873; teamnovak.com.

NOVAROSS distributed exclusively by Trinity Products Inc.; (732) 635 1600; teamtrinity.com.

OFNA RACING (949) 586-2910; ofna.com.

PARMA/PSE (440) 237-8650; parmapse.com.

PEAK PERFORMANCE (714) 692-8533; peakmotors.com.

POWER RACING PRODUCTS distributed by Happytime Hobby Distributors (408) 988-1188; happytimehobby.com.

PRO-LINE (909) 849-9781; pro-lineracing.com.

PROTOFORM INC. distributed by Pro-Line (909) 849-9781; pro-lineracing.com.

HAPPYTIME HOBBY DISTRIBUTORS (408) 988-1188; happytimehobby.com.

RC SCREWZ (734) 260-6151; rcscwz.com.

REEDY a division of Team Associated (714) 850-9342; teamassociated.com.

SCHUMACHER USA (813) 889-9691; racing-cars.com.

SERPENT INC. USA (305) 639-9665; serpent.com.

SIRIO; distributed by Trinity Products (732) 635-1600; teamtrinity.com.

SPEEDMIND; distributed by Magma Intl. Ltd. (905) 886-1808; speedmind.ca.

SVM CRONO (800) 555-4604; svmcrono.com.

TAMIYA AMERICA INC. (800) 826-4922; tamiyausa.com.

TEAM ASSOCIATED (714) 850-9342; teamassociated.com; rc10.com.

TEAM LOSI distributed by Horizon Hobby Inc. (800) 338-4639; teamlosi.com; horizonhobby.com.

TEAM ORION INC. (714) 694-2812; team-orion.com.

TOTAL POWER SOLUTIONS (954) 345-8792.

TRAXXAS CORP. (972) 265-8000; traxxas.com.

TRINITY PRODUCTS INC. (732) 635-1600; teamtrinity.com.

XRAY distributed by Serpent USA; (305) 639-9665; teamxray.com.

XTM RACING distributed by Global Hobby Distributors (714) 964-0827; xtm.globalhobby.com.

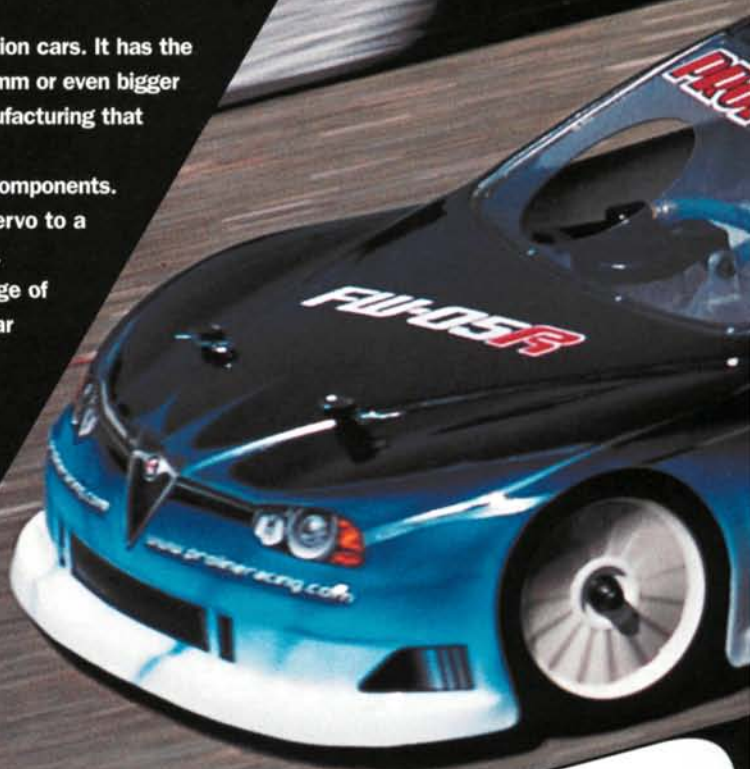
XXX-MAIN RACING (877) 744-6793; xxxmain.com.

Kyosho kicks it up a notch in the competition nitro touring sedan market with the introduction of two race-bred chassis—the V-One-RR Evolution belt-drive car and the all-new FW-05R shaft-drive car.

The V-One-RR is one of the world's top best-selling competition cars. It has the benefit of unique design features (no parts borrowed from 235mm or even bigger $\frac{1}{8}$ cars), and it also has the precision and high quality of manufacturing that have been Kyosho's trademarks for decades.

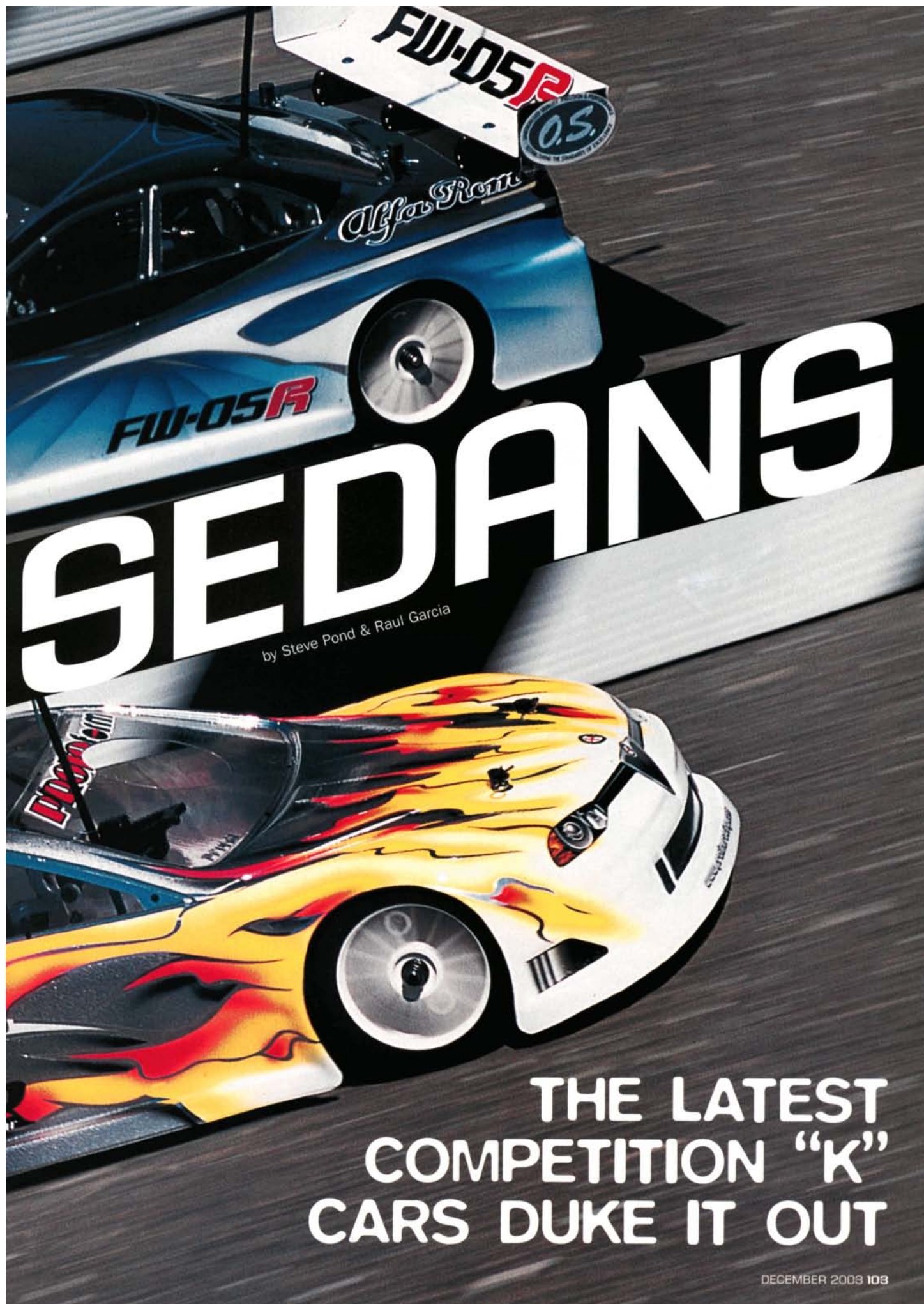
The new Evolution features a number of new and modified components. The primary goal seems to have been to move the steering servo to a lower, horizontal position to reduce the car's center of gravity. This and other revisions keep the V-One-RR on the cutting edge of performance and capable of competing against any touring car out there.

The all-new FW-05R has a shaft-drive system that has been a Kyosho specialty for years in its nitro off-road cars. Shaft drive didn't earn much applause among racers until it was incorporated into the Nitro TC3, but it now seems to have gained in popularity, and Kyosho is taking it to the next level. Its shaft drive and many other competition features and options should place the FW-05R solidly in the ranks of top racing machines. In addition to being able to assess these two new cars side by side, their simultaneous release gives us a unique opportunity to compare Kyosho's shaft- and belt-drive systems in new vehicles.



SUPER



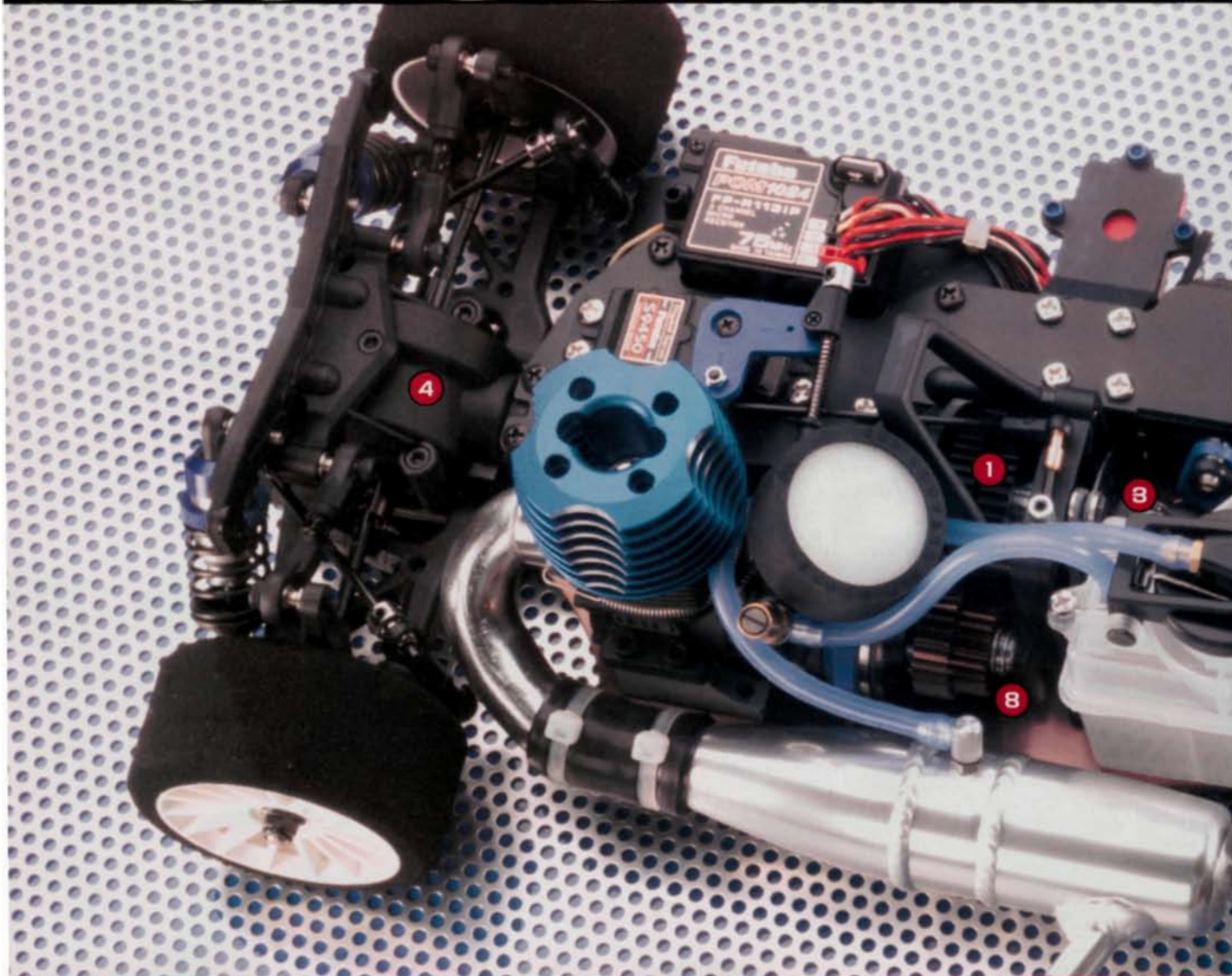


by Steve Pond & Raul Garcia

THE LATEST
COMPETITION "K"
CARS DUKE IT OUT

Kyosho

FW-05R



FW-05R

The FW-05R is an all-new car with a shaft-drive system that Kyosho intends to use to take nitro sedan performance to the next level. Shaft drive isn't new, but Kyosho's unique design might just have the right combination: a forward-facing engine on the car's right side and a centrally mounted transmission. The shaft-drive system is tough, too. It has sealed, 6-gear front and rear diffs with all-metal ring, pinion and diff gears. It's certainly designed to handle the power of the most potent small-block engines—and then some. A shaft-drive system also requires very little maintenance: there aren't any tensioners, pulleys, or belts (that stretch and/or break) to worry about. In fact, the drive system needs very little regular maintenance.

With the 05R, Kyosho engineers had a clean slate to work on, and they seized the opportunity to lower the radio plate and the mounting points of all the support gear. The radio plate alone is more than

7.5mm lower than on the Evolution—a whopping 20 percent lower. The fuel tank looks awkwardly tall, but it's the tank that's used in all the other versions of the V-One-R. The 05R's chassis upper deck is just so low that it allows the tank to stand out a little more.

The suspension is of the typical pivot-ball variety, but the shaft-drive system allows a new option that isn't available on most belt-drive cars: the kit includes three suspension mounts for the rear lower arms. Mixing and matching these mounts can provide various degrees of rear anti-squat or change the rear roll center.

This new machine is clearly poised to be a contender at any level. Its performance during our tests and the potential Kyosho sees could further fuel the rumors that this will be the factory drivers' primary racing machine at the upcoming world championship in Brazil.

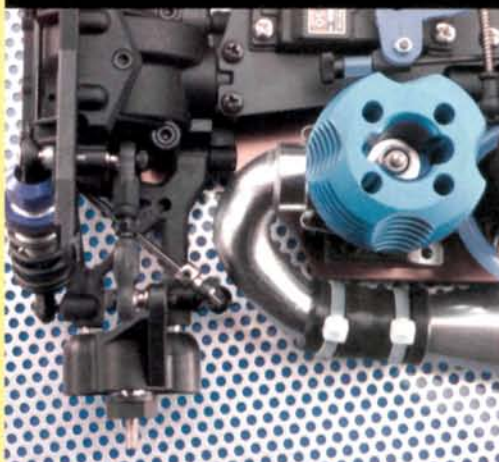
Blue-anodized aluminum drive shafts connect the 2-speed transmission and disc brake to the differentials. The drive shafts are light and strong enough to handle any engine you drop into this car.



HOT FEATURES

1. Center-mounted clutch-type 2-speed transmission
2. Shaft drive with lightweight aluminum drive shafts
3. Vented-steel disc brake with fiber pads
4. Sealed, silicone-filled 6-gear differentials
5. Blade-type, front, anti-roll bar
6. Low-profile radio plate
7. Horizontally mounted steering servo
8. Centax-type adjustable clutch
9. Fine-pitch 0.8 module clutch and spur gears
10. Threaded-aluminum shocks with bladder seals
11. Dual-bellcrank steering with adjustable servo-saver
12. Adjustable pivot-ball suspension

The Kyosho exhaust header has a tighter bend than most; it allows enough clearance for the rear suspension and, specifically, for the anti-roll-bar link to have a full range of motion without any interference.



The fuel tank looks extra-tall when it's installed in the 05R, but it isn't. The 05R's upper deck is nearly 8mm lower than the Evo's; its fuel tank is mounted at exactly the same height. The thickness of the spacer between the tank and the upper deck shows how much lower the 05R's upper deck is than the Evo's (and those on many other belt-driven cars).



Kyosho

FW-05R

PERFORMANCE

The FW-05R gets moving in a hurry. The O.S. Turbo engine certainly helps, but there's more to it than just the engine. Even with a pair of heavy 6-gear diffs filled with silicone fluid, this car has more snap than the Evo. It gets the jump on the straight and coming out of the corners, and that's surprising when you take into consideration that the 05R doesn't have a standard front one-way. We don't know whether it's the result of its low CG or its suspension geometry, but the 05R also carries slightly more speed through the corners.

Its transition into the corners is smooth. Its rear end is absolutely planted, and that gives you confidence that even if you drive a little aggressively when you enter a corner, the car won't swap ends.

We tested the car in stock condition, but the addition of a few options will make it even better; key among these is a front one-way for the right tracks. Its punch out of the corners is already strong and a front one-way will strengthen it further. Overall, the 05R is excellent.

The shaft-drive system and the very powerful O.S. Turbo engine together take the FW-05R out of corners faster than any touring car I've ever driven.



The FW 05R includes a Centax-style clutch and a clutch-type 2-speed transmission. Note the fine-pitch 0.8 module gears. They allow smaller gear-ratio changes and operate more smoothly than the more common 1.0 module gears.



The stock adjusters for the pivot balls were replaced by these machined-Delrin Kawahara adjusters. The standard, molded adjusters caused tight spots at certain points in the suspension travel. An included 2mm spacer is installed on each rear axle to allow the use of 30mm-wide foam tires.



SPECS



SPECIFICATIONS

	FW-05R	V-ONE-RR EVOLUTION
Wheelbase	258mm	260mm
Weight, as tested	1,832g	1,867g
Width	200mm	200mm
Chassis	3mm aluminum/ 2mm fiberglass	3mm aluminum/ 2mm fiberglass
Drive train	Shaft drive w/center-mounted clutch-type 2-speed tranny	3-belt w/clutch-type 2-speed tranny
Clutch	Adjustable Centax-style	Adjustable Centax-style
Included clutch/spur gears (1st/2nd gear)	Clutch 21/26; spur 51/46	Clutch 20/25; spur 61/56
Transmission ratios (1st/2nd gear)	2.429/1.769:1	3.05/2.24:1
Drive-train ratio	3.077:1	2.526:1
Final drive ratios (1st/2nd gear)	7.473/5.444:1	7.705/5.659:1
Differentials (F/R)	Sealed 6-gear bevel	One-way/ Sealed 6-gear bevel
Drive axles	Dogbones	Dogbones
Brakes	1 steel disc brake w/fiber pads	1 steel disc brake w/fiber pads
Shocks	Aluminum-body, threaded w/bladder seals	Aluminum-body, threaded w/bladder seals
Linkage (F/R)	Standard/turnbuckle	Turnbuckle
Bearing type	Metal-shielded	Metal shielded

CHASSIS & SUSPENSION ADJUSTMENTS

Arm droop	Yes	Yes
Up-travel limiter	No	No
Front toe	No*	Yes
Front track	Yes	Yes
Front camber	Yes	Yes
Front upper arm mounting positions	1	1
Front shock positions (upper/lower)	1/1	1/1
Steering tie-rod positions (inner/outer)	1/1	3**/1
Rear toe	Yes	Yes
Rear track	Yes	Yes
Rear camber	Yes	Yes
Rear camber-link positions (inner/outer)	2/2	2/2
Rear shock positions (upper/lower)	3/1	2/1

*The stock steering links have ball cups that are screwed onto a threaded rod until they meet; this doesn't allow toe to be adjusted without having the optional steering linkage.

**The kit includes three center bellcranks for different Ackerman positions.

TEST GEAR

BOTH CARS WERE SET UP WITH IDENTICAL GEAR FOR A FAIR PERFORMANCE COMPARISON. WE USED:



O.S. Engines .12 TR-T(P) engine



Trinity 1100mAh NiMH receiver packs



O.S. tuned pipes

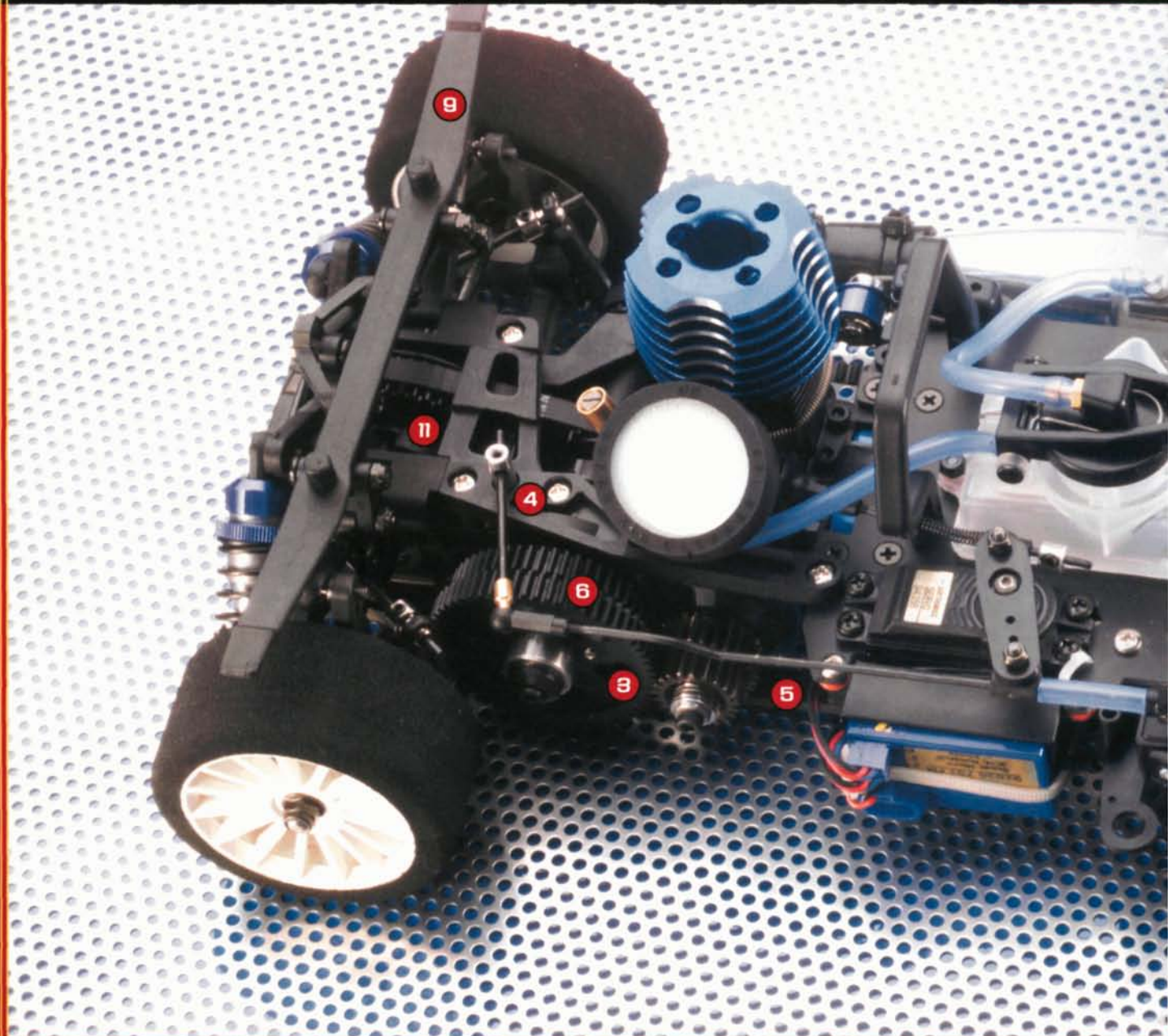


Trinity Platinum blend fuel



Trinity/TRC touring foam tires

EVOLUTION



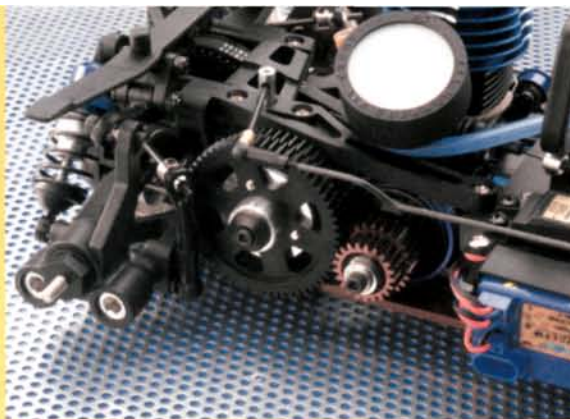
V-ONE-RR EVOLUTION

The V-One-RR Evolution is the latest and greatest belt-drive competition nitro car from Kyosho. Kyosho took the solid V-One-RR foundation and upgraded it to include new narrow front bulkheads and 4mm-longer suspension arms to optimize front-suspension geometry. The inner mounts for these arms are now separate pieces, so the suspension can be shimmed to modify the front-roll-center geometry. The most notable change is that the steering servo is mounted on the lower chassis plate for a lower CG and better handling. It's connected

to the steering hub with a center-mounted bellcrank that has a built-in, adjustable servo-saver. The standard, front, one-way diff enhances on-power acceleration and steering on the track. The Centax-style clutch and 2-speed transmission have been updated with fine-pitch, 0.8 module gears.

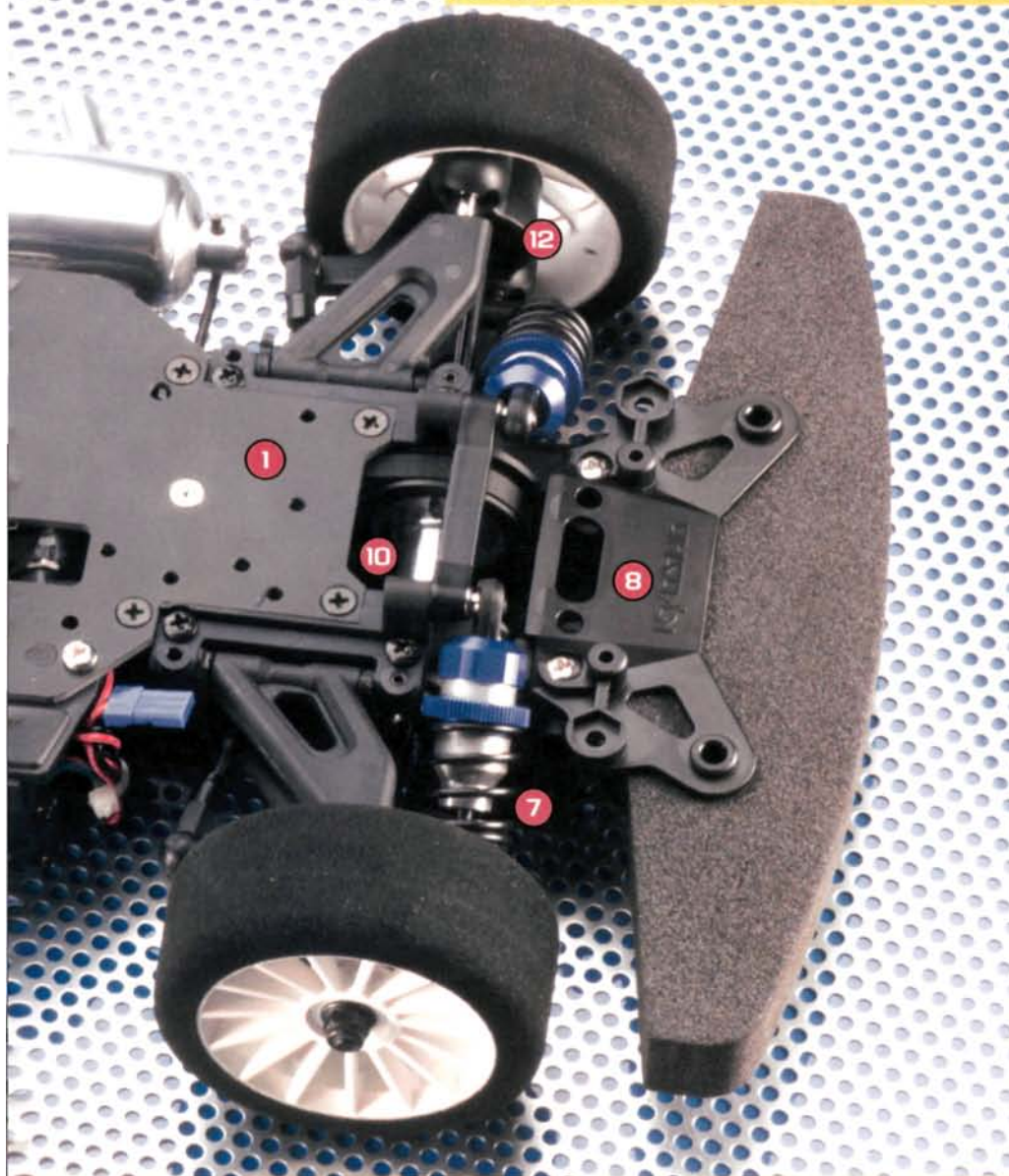
This combination package makes the V-One-RR Evolution the most advanced Kyosho belt-driven car ever, and it's certain to be competitive at any level.

The standard, Centax-style, adjustable clutch and the fine-pitch gears allow a greater range of adjustments than ever before. The light, adjustable, clutch-type 2-speed transmission improves acceleration.



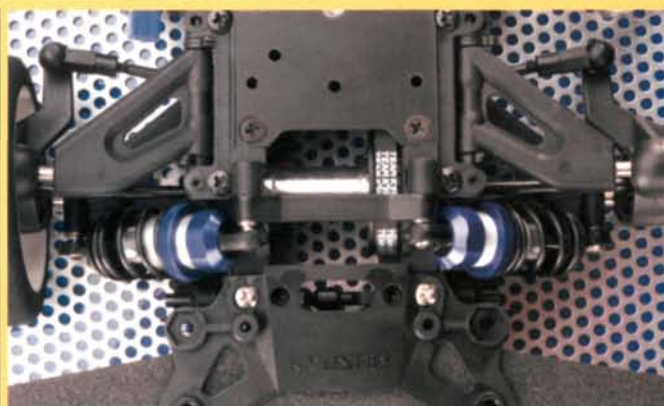
HOT FEATURES

1. 3-belt drive system
2. Laydown steering-servo mounting position
3. Clutch-type 2-speed transmission
4. Vented-steel disc brake with fiber pads
5. Centax-style adjustable clutch
6. Fine-pitch 0.8 module clutch gears and spur gears
7. Threaded-aluminum shocks with bladder seals
8. Blade-type front anti-roll bar
9. Floating rear-body mount
10. Front one-way differential
11. Sealed, silicone-filled 6-gear rear differential
12. Adjustable pivot-ball suspension



New, 4mm longer front suspension arms and narrower bulkheads optimize the front suspension's geometry for better cornering and bump handling.

A front one-way differential is standard in the Evo. A blade-type front swaybar (which can be seen in the opening of the upper bumper brace) allows quick oil-stiffness adjustments and side-to-side suspension tweaks.



EVOLUTION

PERFORMANCE

The Evo is Kyosho's premier racing machine in the belt-driven category, and its strong, well-proven design serves it well on the track. Acceleration is smooth but strong and is aided by slightly lower gearing (a higher ratio) than the 05R and other competitors have. Racing on long tracks will probably require a slight ratio change, but the range of ratios available is suitable for most tracks (with a couple of optional gears).

The Evo gets out of the corners well. The standard front one-way differential and the new front suspension combine to allow earlier throttle application, so you can shave precious tenths off lap times. On a low-bite surface, getting into the corners is a little less predictable, but a couple of suspension tweaks will plant the rear a little more securely for a more confident feel when entering corners.

The Evo is a very strong performer and is certainly a solid competitor. Although the consensus here leans toward the 05R car, there will always be tracks on which the Evo may have the advantage. The car has a strong global following, and this latest version—the most advanced of the breed—is likely to strengthen that.

**The Evolution is the pinnacle
of the V-One-RR line, and
it can be run with any
competition car on any track.**



The floating rear body mount included with our test car applies more downforce to the suspension than to the chassis. This promotes traction, especially when the car is running at high speeds.



The steering servo is mounted horizontally between the upper and lower chassis plates to reduce the car's CG. Even the receiver and switch are mounted below the upper deck.



DRIVERS' COMMENTS



STEVE POND

I wouldn't have any reservations about driving either car at any level of competition. They're both extremely capable and could win on any track, anytime. Having said that however, if I were forced to make a choice, I would pick the FW-05R.

Even if the cars were evenly matched and there was no measurable performance advantage, I

would still opt for the 05R because a shaft-driven car has fewer maintenance requirements. It also suits my driving style more than the Evo, and that makes my choice even easier.

With its front gear differential, the 05R requires a different driving style from a car with a one-way, so at first, it felt a little unfamiliar. Braking points and the line coming into the corner are a little different with the stock drive train, but when I was used to it, I clicked off faster laps than I did with the Evo.

The 05R's most noticeable performance advantage is the result of its low center of gravity. We ran both cars with TRC foam tires in the same compound. The track at Hobby Chamber in West Haven, CT, had recently been treated with VHT, so traction was exceptional—so much so that the Evo traction-rolled about a dozen times when either of us went into some of the corners too hot. The 05R never rolled.



RAUL GARCIA

I would be happy to race either car, but for this test, each was built as it comes out of the box, and under these conditions, I preferred the V-One-RR Evolution belt-drive car.

I turned slightly faster lap times with the 05R, but I was more comfortable and my performance was more consistent

with the Evo. I found it difficult to hit my braking points consistently, lap after lap, with the 05R; you not only have to nail the point at which the brakes are applied, but you also have to nail the timing of their release before you enter a corner. You have to complete the braking while the car is still going straight ahead and then release them before it enters the corner. Because of its rear-wheel-only braking, the Evo turned better for me when I braked when deep into a corner; it rotated nicely: the more brake you apply (within reason), the more it rotates. I feel that the Evo has a significant edge when it's accelerating out of a corner. The front one-way diff really pulls it through corners when you're on the gas; the bigger and faster the turn, the more obvious this advantage is. The 05R lost drive coming out of the long sweeper on to the back straight, but the Evo just hooked up and consistently pulled in a few car lengths on that section. My overall performance in form, total laps and average lap times was slightly better with the Evo.

SCOREBOARD

	FW-05R	EVOLUTION
Straight-line acceleration	10	9
Despite the Evo's taller gearing, the shaft-driven 05R pulls away when both cars are pointing straight forward; the 05R is noticeably quicker.		
Acceleration, tight corners	8.5	8.5
Tight corners don't give either car an advantage. They both put down good power.		
Acceleration, sweeping corners	8	9
The Evo has the advantage here. The front one-way diff pulls it through the faster corners more strongly than is possible with the 05R's front gear diff.		
Off-power steering	9.5	9
The 05R delivers slightly sharper steering response in the slow, tight sections of the infield. The Evo is very nimble here as well but slightly less responsive.		
Overall corner speed	10	9
The 05R's very low CG gives it a distinct advantage in cornering speed, especially in high-traction conditions. The Evo carries as much speed through the corners as any other car, but the 05R takes it to another level.		
Overall stability	9	9.5
We have to go with the Evo in the stability department. It's slightly harder to hit your marks with the 05R—at least, in its stock configuration. The Evo runs more smoothly and stays composed while the 05R is a little more on edge.		
Durability	9	9
Both cars are very well designed, and the quality of their components is excellent. The only consistent problem was that the molded ball ends popped off the ball studs a little too easily.		
Ease of maintenance	9.5	9
The 05R has the advantage here simply because of its shaft drive. There are simply no worries about stripping or breaking a belt. Both cars have subtle strengths and weaknesses that would make this category a draw if it weren't for the 05R's drive system.		
Total scores	73.5	72

LAP TIMES	STEVE		RAUL	
	05R	EVO	05R	EVO
Average of 10 fastest laps	9.38	9.57 sec.	9.62	9.74 sec.
Overall average lap time	9.59	9.78 sec.	9.81	10.12 sec.

Timing results provided by



Though the cars are similarly matched, the FW-05R's overall performance (in our tests) and other attributes give it a slight margin over the V-One-RR.

Is this conclusive evidence that shaft drive is superior to belt drive? No. This test gave us a unique opportunity to test very similar cars with different drive systems. There are considerable differences in other aspects of their design, so we can't totally attribute all of the FW-05R performance gains just to its drive train. In spite of evidence that the FW-05R is capable of clicking off faster laps than the V-One-RR Evolution, we each chose a different car as our favorite because other factors make one more suitable than the other for our driving styles. So the shaft-versus-belt issue will rage on, but there are two things for certain that we learned from this experience: shaft drive is at least every bit as competitive as belt drive, and it requires less maintenance.

SOURCES

AIRTRONICS (714) 978-1895; airtronics.net.

FUTABA distributed exclusively by Great Planes Model Distributors Co. (217) 398-6300; (800)-682-8948; futaba-rc.com.

KYOSHO distributed by Great Planes Model Distributors Co.; kyosho.com.

GREAT PLANES MODEL DISTRIBUTORS; greatplanes.com.

O.S. ENGINES distributed by Great Planes Model Distributors Co.; osengines.com.

PROTOFORM INC. distributed by Pro-Line (909) 849-9781; pro-lineracing.com.

TRC (732) 635-1600; teamtrinity.com.

TRINITY PRODUCTS INC. (732) 635-1600; teamtrinity.com.

Team Associated Monster GT

THE TEAM ASSOCIATED MONSTER GT made its debut in *RC Car Action* exactly one year ago in the December 2002 issue's "First Look." Ordinarily, "First Look" samples are soon followed by the arrival of production vehicles on shop shelves, but Associated has kept us in suspense! Cliff Lett and his design team have invested a lot of time in the details, as they wanted the Monster GT to be the best it could be before unleashing it on the world. After all, it is the first-ever monster truck from Associated, and as the saying goes, you don't get a second chance to make a first impression. It looks as if the moment of truth is here: Associated's Monster GT is officially available, and we finally get to take this highly anticipated truck out for a test drive!



**THE A-TEAM
GOES MONSTER
TRUCKING**

KIT FEATURES

CHASSIS. The Monster GT's extra-long, channeled chassis is machined from a single piece of extruded aluminum, and it extends the full length of the vehicle to form an extremely rigid and tough platform. Molded side plates are attached to the chassis to form a tub, and they provide additional room for the fuel tank, battery box and steering servo. A small skidplate molded into the right side plate protects the steering servo.

The front and rear suspension assemblies are bolted onto blue-anodized aluminum lower chassis plates. An extra-beefy, four-piece front and rear bumper and skidplate combination provides exceptional crash protection, and the piano-wire roll bar doubles as a carrying handle. The receiver and 4-cell battery holder are housed inside separate sealed boxes.

DRIVE TRAIN. The Monster GT's shaft-drive 4WD system has a twist: the engine is mounted transversely on the chassis. On all the other shaft-driven monster trucks, the engine is mounted in-line. A bevel gear on the spur gear shaft is mated with a bevel gear inside the transmission, and that's how the tranny gets its spin.

The transmission features a finger-type adjustable 2-speed and a servo-actuated reverse that are activated by pressing the third channel shift button on the radio. An adjustable slipper clutch provides drive-train protection, and it can be used as a traction-control device to limit wheelspin.

Heavy-duty steel CV axles transfer the power from the tranny to the diffs, and another set transfers power from the diffs to the wheels. The center CV axles feature oversize balls that pivot inside giant, blue-anodized aluminum drive yokes. The diffs have hard steel ring and pinion gears and internal steel bevel gears for greater strength. The dual-disc brake used on the preproduction truck has been replaced with a single-disc brake and a thicker rotor.



The piggyback reservoirs aren't functional, but everything else sure is. The arms are anchored to aluminum bulkheads.

SUSPENSION AND STEERING. To reduce the MGT's part count, the front and rear suspension arms, pivot-ball carriers, body mounts, shock towers and shocks are identical. The plastic-body, oil-filled shocks have reservoirs for extra style; the reservoirs aren't functional, but the shocks provide silky-smooth damping all the same. The shocks pass through the upper suspension arms and are mounted on the super-long lower suspension arms. The upper suspension arms pivot on oversize hinge pins that pass through heavy-duty, blue-anodized aluminum arm mounts.

Adjusting the depth of the pivot balls inside the suspension arms sets camber

and can be used to make subtle track-width adjustments; thick, steel turn-buckles set the toe angles. Standard 14mm hex hubs let you bolt on wheels designed for the T-Maxx and Savage 21 and vice versa. The dual-bellcrank steering system pivots smoothly on metal bushings and a servo-saver is attached directly to the steering servo.

ENGINE AND ENGINE ACCESSORIES. A Team Associated Pro-21 engine (manufactured by Thunder Tiger) provides the go power. It features Team Associated's patented "Dual-Start System" that allows you to pull-start the engine in the usual way, as well as crank the engine with a hex shaft (included) chucked in a cordless drill (not included). The engine also features a dual-needle slide carb, ABC piston and sleeve construction, a bushed connecting rod, a 9-fin, machined-aluminum cooling head and a dual-element, high-volume air filter.

An aluminum flywheel with fan-shaped blades directs cooling air to the engine, and a 3-shoe clutch ensures smooth and consistent power delivery. Exhaust is directed through a 180-degree cast aluminum header and aluminum dual-chamber tuned pipe. The 135cc fuel tank has a unique dual pick-up system that allows the fuel to flow to the carburetor even when the truck is on its lid. The tank also has an internal fuel filter on each pick-up to prevent dirt from entering the fuel line and a very effective in-line priming bulb.

INCLUDED ELECTRONICS & ACCESSORIES



TEAM ASSOCIATED XP3 PISTOL GRIP RADIO. The XP3 is an AM, 27MHz, 3-channel radio system with steering and throttle trims, steering dual rate and throttle high and low end-point adjustments that allow you to precisely set up the MGT's throttle and brake linkages. The radio also features a third channel shift button on the hand-grip for quick and easy reverse shifting, and the steering wheel is mounted at a 10-degree angle for a natural and comfortable driving feel.

TEAM ASSOCIATED S1903. The MGT comes with two S1903 servos: one for throttle/brake and another for third-channel shifting duties. These standard servos have

41 oz.-in. of torque and has a transit speed of 0.19 second at 60-degrees rotation. They are just fine for opening and closing the throttle lever, putting the squeeze on the brake rotor and shifting into reverse.

TEAM ASSOCIATED S2008MG STEERING SERVO. This servo puts out 111 oz.-in. of torque and has a transit speed of 0.20 second at 60-degrees rotation. The servo also has an internal ball bearing for smooth performance and

metal gears for increased durability; no need to upgrade here.

you'll need

- Fuel
- Fuel bottle
- Glow igniter
- 12 AA batteries

factory options*

- Side-mount exhaust header—item no. 25405
- Blue-anodized aluminum machined chassis—25385
- "Robo" brake disc—24410
- Titanium-turnbuckle set—25383
- Blue-anodized aluminum shock bodies—25403
- Forward-only tranny kit—25415

*Partial list; see manual for all options.

THE COMPETITION

	ENGINE	TRANSMISSION	REVERSE	SHOCKS	WHEELBASE	STARTER	RADIO	PRICE*	REVIEWED
Associated Monster GT	.21	2-speed	Yes	8	14.5 in. (368mm)	Pull/shaft	Associated	\$499	12/03
Kyosho Mad Force RCX	.21	3-speed	No	8	12.5 in. (318mm)	Pull-starter	Not Included	\$469	10/03
Tamiya Terra Crusher	.18	2-speed	Yes	8	14.1 in. (360mm)	Electric	Tamiya AD Spec	\$409	3/02
HPI Savage 21	.21	2-speed	No	8	13.25 in. (336mm)	Pull-starter	HPI	\$429	12/02
Traxxas T-Maxx	.15	2-speed	Yes	8	12 in. (305mm)	Electric	Traxxas TQ3	\$409	11/02

Prices vary with dealer.



The Monster GT has a large-capacity 135cc fuel tank to provide extra-long run time. The tank features a unique dual pick-up fuel-delivery system that feeds fuel to the carburetor even when the truck is on its lid.

SPECIFICATIONS

MANUFACTURER Team Associated

MODEL Monster GT

PRICE \$500

(Price varies with dealer)

DIMENSIONS

Wheelbase 14.5 in. (368.3g)

Width 17.25 in. (438.15g)

WEIGHT

Total, as tested 12 lbs. 4 oz. (5,624g)

CHASSIS

Type Extruded rail

Material Aluminum

DRIVE TRAIN

Type Shaft-drive 4WD

Primary 15T clutch bell/52T spur gear

Transmission ratio 8.132:1 (first)/5.624:1 (second)

Final drive ratio 28.22:1 (first)/19.51:1 (second)

Drive shafts CV axles

Differentials Sealed bevel gear

Bearing type Rubber sealed

SUSPENSION

Type Upper and lower wishbones

Shocks Eight oil-filled, coil-over

WHEELS

Type One-piece plastic

TIRES

Type Team Associated chevron tread

ENGINE AND ACCESSORIES

Engine Team Associated

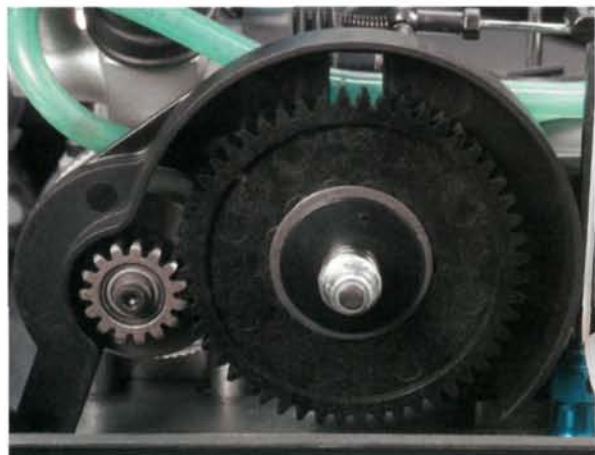
Pro-21 Dual-Start

Carburetor 2-needle slide

Pipe Dual-chamber, aluminum

Manifold Tubular round port

Fuel tank 135cc dual pick-up



Above: the transmission has an auto-shifting 2-speed, a slipper clutch and a servo-actuated reverse mechanism. The gear shroud helps protect the gears (and your fingers), but a cover would be welcome.

Right: the machined extruded aluminum chassis looks like a steel girder, and it's about as rigid as one. Look closely, and you can see the burly 5mm CV axles.



BODY, WHEELS AND TIRES.

The MGT's wheels are the same size as T-Maxx wheels, but the tall-sidewall, chevron-treaded tires are much bigger to provide additional ground clearance. The slotted chrome wheels and monster-truck tires are incredibly realistic and look swanky on the truck.

The MGT screen-printed body is huge! The graphics look slick, and the body arrives completely trimmed and mounted on the chassis. A blue Team Associated flag is installed on a plastic mount on the back of the truck bed, and it blows around nicely in the wind; patriotic racers will figure out a way to install an American flag in its place, though. The screen-printed bodies come in blue and red, and there's even a limited-production body with U.S. flag graphics; I'm sure that those bodies will sell out quickly.

LIKES

- > Excellent handling for a monster truck.
- > Dual-Start engine-starting system.
- > Dual pick-up fuel tank.
- > High torque, metal gear steering servo.

DISLIKES

- > Decorative oil reservoirs do nothing but add weight.

PERFORMANCE

I tested the MGT at the Crystal Park Hotel & Casino in Compton, CA. No, I didn't run the truck in the hallways or through the hotel lobby; the hotel has a really cool off-road track in the back parking lot, and it also has a huge permanent on-road track there, too. The off-road track had been neglected for a while, so it was full of ruts and cracks that typically would have been repaired on race day. All the better to test the MGT's rough-track handling abilities.

I broke in the engine before venturing off to the track, so when I got there, I was ready for action. I brought my battery-operated power drill along so I could test the Dual-Start System. I chucked the long starting shaft into the drill and inserted the hex-shaped end inside the starter-input cup. The engine fired up in less than a second and settled into a steady idle.

Before I ran the truck on the track, I flipped it onto its lid to see whether the dual pick-up fuel tank would continue to feed fuel to the carburetor with the truck upside-down. The engine continued to run, but I had to blip the throttle every 30 seconds or so to prevent the carburetor from loading up. More than five minutes passed, and the engine didn't stall.



The MGT felt incredibly responsive, and it accelerated quickly for a truck that weighs more than 12 pounds. Team Associated got the shock oil and spring selection down; the suspension was perfect for the track condition. The shocks are soft enough to quickly cycle up and down to cope with the smaller bumps, ruts and cracks, but they also have the necessary damping to prevent the chassis from bottoming out when landing from big jumps.

The MGT had no problem coping with the track's many obstacles, but I noticed that it pushed quite a bit in the tight corners. I had to clamp down on the brakes to transfer the weight to the front tires to get the necessary turn in. After a few laps, however, I had the truck's handling down and made good time around the track. The reverse function was invaluable because I didn't have to walk down from the drivers' stand to free the truck whenever I parked it up against a pipe. The shifting mechanism works very smoothly; shifting from forward to reverse and vice versa is absolutely seamless.

After running a few tanks, I handed the wheel to assistant editor Jason Sams who had been snapping off shots for this "Track Test." After one lap, Jason was burning up the track and putting down some extremely fast lap times. For some reason, the truck looked as if it was turning much tighter after Jason took command of the wheel. I used the radar gun to check the truck's top speed down the long 150-foot straightaway. The MGT made several passes, and the radar gun recorded a 32mph highest speed. Unfortunately, the truck overshot the sweeper at the end of the straightaway and plowed right into a chain-link fence.

THE VERDICT
Associated's Monster GT is one badass monster truck. It looks good, handles great and is extremely rugged. It's loaded with many unique features including a machined, extruded aluminum chassis, a dual pick-up fuel tank, a transverse-mounted engine and Team Associated's Dual-Start System. The MGT also has many standard features that are considered expensive hop-up accessories on many comparable monster trucks such as front, rear and center CV axles, aluminum front and rear lower chassis plates and an aluminum dual-chamber, tuned pipe. In my opinion, the Team Associated Monster GT has definitely raised the bar in the highly popular 4WD monster truck category.

THE VERDICT

Associated's Monster GT is one badass monster truck. It looks good, handles great and is extremely rugged. It's loaded with many unique features including a machined, extruded aluminum chassis, a dual pick-up fuel tank, a transverse-mounted engine and Team Associated's Dual-Start System. The MGT also has many standard features that are considered expensive hop-up accessories on many comparable monster trucks such as front, rear and center CV axles, aluminum front and rear lower chassis plates and an aluminum dual-chamber, tuned pipe. In my opinion, the Team Associated Monster GT has definitely raised the bar in the highly popular 4WD monster truck category.

TEST GEAR

DuraTrax/O'Donnell 20% nitro fuel

O'Donnell uses special anti-foaming agents reduce bubbles in the fuel tank that can make an engine run inconsistently. Our Associated Pro-21 engine ran strong and didn't flame out during testing with the O'Donnell juice.



RATING THE TEAM ASSOCIATED MONSTER GT

	POOR	FAIR	GOOD	VERY GOOD	EXCELLENT
INSTRUCTIONS	Includes a great quick-start guide, operating instructions and exploded-view diagrams.				
PARTS FIT AND FINISH	Everything operates smoothly without binding, and the factory assembly is very good.				
ACCELERATION	The MGT accelerates quickly for a 12-pound monster truck.				
CORNERING ABILITY	The MGT pushes in the tight corners, but it rarely spins out.				
BUMP & JUMP HANDLING	The MGT rolls over bumps as if they aren't even there and soaks up landings from big jumps without bottoming.				
DURABILITY	The MGT is an incredibly rugged monster truck.				
RADAR-TESTED TOP SPEED	32MPH*				
BEST BUYER	Any nitro monster-truck fan				

* Top speed varies with operating conditions.

SOURCES

DURATRAX/O'DONNELL distributed by Great Planes Model Distributors (217) 398-6300; (800) 682-8948; greatplanes.com.; duratrax.com.
TEAM ASSOCIATED (714) 850-9342; teamassociated.com.

tracktest >>>

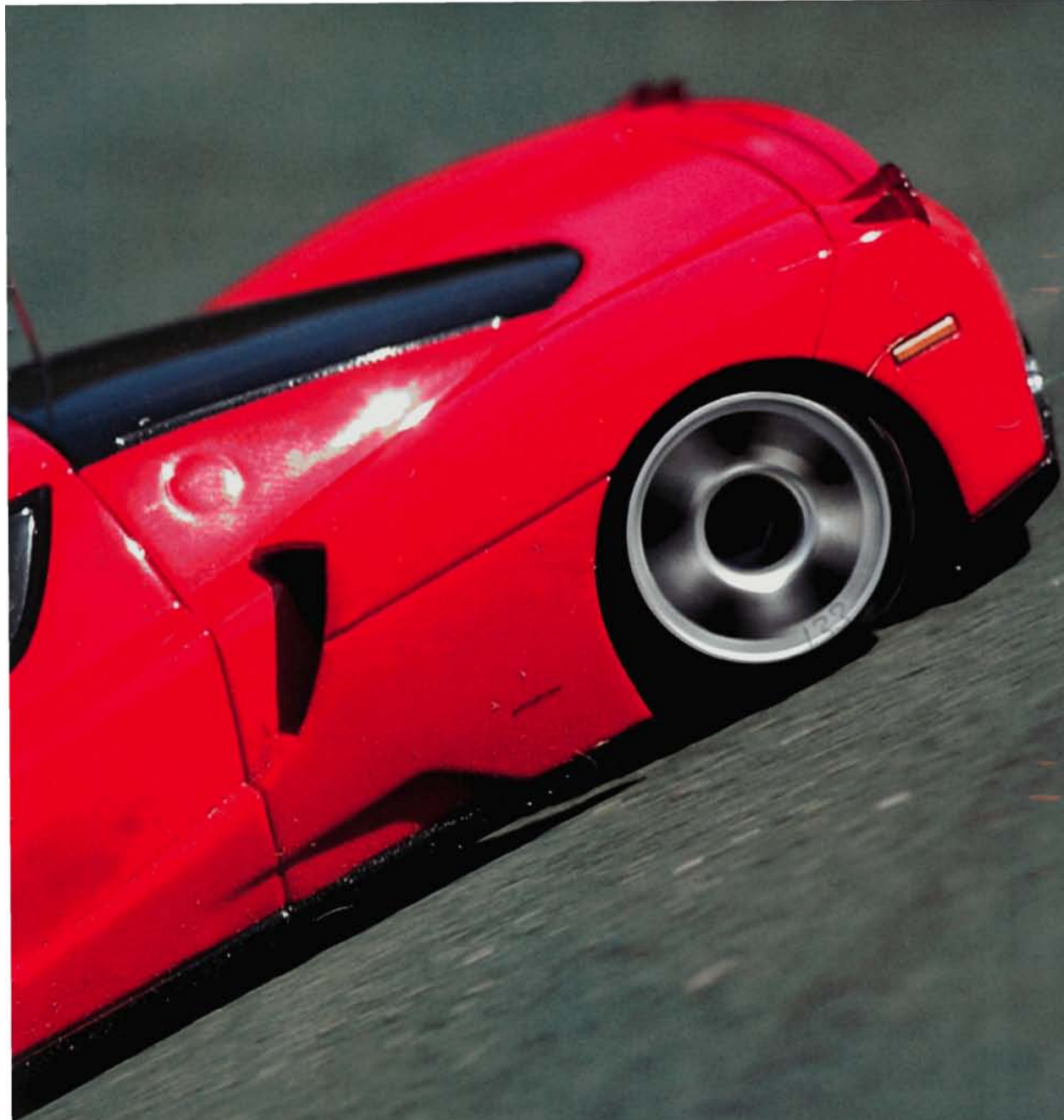
1/28
SCALE

ELECTRIC 2WD ON-ROAD

BY PAUL ONORATO

Kyosho Mini-Z MR-02 Enzo





PALM-SIZE PERFORMANCE

THE KYOSHO MINI-Z CAN BE CREDITED with sparking the palm-size RC car explosion. With their ultra-realistic, highly detailed bodies, proportional control and full-size transmitters, the Mini-Zs set the standard for microcar performance and realism. Kyosho could just continue to churn out the same old Mini-Z chassis, but the big K's engineers have been busy with their CAD programs to create a new and improved Mini-Z. The new MR-02 chassis isn't just a tweaked MR-01 chassis with a couple of hop-ups; it's a totally redesigned platform that has been tweaked for super handling. The radio gear has been upgraded with a KO Propo built system that has a brake, and the new gloss-coated body adds to the Mini-Z's ultra-realistic looks. Sounds good to me! Let's drive Kyosho's first offering of the MR-02 chassis—a picture-perfect Enzo Ferrari.

KIT FEATURES

CHASSIS. The Mini-Z's foundation is a one-piece plastic frame with integrated electronics running down its centerline and a motor pod attached at the rear. The underside is smooth for snag-free running and is home for the tiny on/off switch and receiver crystal. It's also where the motor pod is attached with a plastic H-bar. To alter the wheelbase between 98mm, 102mm and 106mm, just reposition the H-bar in one of three mounting locations. The Enzo Ferrari body requires a 98mm setting.

The 4 AAA batteries that power the Ferrari lie side by side across the bottom of the chassis in order to keep weight as low as possible. The two batteries in the center are difficult to remove, but Kyosho molded two access slots in the bottom of the chassis so that you can poke the cells out from the bottom.

The MR-02 chassis is wider, longer and lower than its predecessor, and that should translate into improved overall handling. The downside to the innovations is that the old bodies are not a direct fit for the new chassis. The front and rear body mounts are the same, but the new chassis is longer in its shortest setting than the original in its longest setting. Although the older bodies will fit on the chassis, they will look hack because the rear wheels won't be centered in the wheel well. You could swap out the new motor pod for the original pod with the rear-mounted motor, but you would lose some of the performance gains of the new mid-motor chassis design.

DRIVE TRAIN. A simple, direct-drive approach gets the Enzo moving. A solid rear axle fitted with a bevel-gear differential and spur gear is mated with a pinion that is friction fit on the motor shaft. A diff guard that is mounted on the motor pod diverts foreign objects from the drive train.

On the original Mini-Z chassis, the motor was mounted behind the rear axle; that caused a pendulum effect (or "long polar moment" for you physics buffs) when cornering. For the MR-02, Kyosho relocated the motor so it's in front of the rear axle and lowered it in the chassis. Three spare pinions are included so you can alter the gear ratio, and guides mounted on both sides of the motor keep the gear mesh set properly.

SUSPENSION AND STEERING. A steering servo integrated into the center of the chassis features a built-in servo-saver that protects the delicate gears from damage during a crash. Steering dual rate can be adjusted on the transmitter; you can dial in as much or as little steering as you want. A solid drag link connects the two steering knuckles, and it's directly attached to the steering servo. To adjust toe-in, Kyosho offers replacement links of different lengths. Tools aren't necessary to swap the links; just pop off a plastic retainer clip, and the part slides right out.

As on the original Mini-Z, the new Z's front suspension is a simple sliding-kingpin design that uses tiny springs over the steering arms for bump absorption. Suspension travel is adjusted by placing travel limiters on the kingpins; three sizes are included. In the rear, bump handling is controlled by a plastic friction shock that is mounted lengthwise on top of the chassis and with a plastic H-plate that connects the rear pod assembly to the main chassis.

BODY, WHEELS AND TIRES. The injection-molded Ferrari body is a work of art, and its glossy clearcoat gives it a mirror shine that rivals the paint job of a full-size Ferrari fresh from detailing. The clearcoat is applied over the decals, so they blend in with the car's finish. In keeping with a scale appearance, the plastic one-piece wheels look just like the real things; they have the correct big-wheel/low-profile-tire proportion. Solid rubber slicks are spec'd for all four wheels, and they should last a long time.

INCLUDED ELECTRONICS & ACCESSORIES

PERFEX KT-5 PISTOL-GRIP

TRANSMITTER. The MR-02's transmitter is designed by KO Propo and features two channels, 27MHz AM crystals, throttle and steering trims, steering dual rate and a battery warning light. The throttle trim and steering dual-rate adjustments are hidden behind a tuning panel.

INTEGRATED ESC/RECEIVER

UNIT. This new and improved unit is housed on the chassis centerline with the crystal mounted underneath for quick and easy crystal changes. The ESC supplies proportional forward and reverse control as well as a brake. A double-pump reverse system prevents you from accidentally inputting reverse when the car is still moving forward, and that prevents damage to the drive train. To engage reverse: push forward on the trigger, return it back to neutral and then push forward again.

TOOLS. Kyosho includes two helpful tools for wrenching on the pint-size MR-02 chassis: a wheel wrench and a pinion/C-clip tool. The plastic wheel wrench has a ribbed handle and fits the wheel nut precisely to make wheel removal easy. One side of the two-in-one pinion/C-clip tool removes the C-clips that retain the front kingpins, and the other end is used to pry off pinions from the motor.

TUNING AND SPARE PARTS.

The car comes with a 6-tooth pinion installed, but if you want to adjust top speed and acceleration, Kyosho includes three extra pinions: 7-, 8- and 9-tooth gears along with the corresponding motor guides that keep the gear mesh set properly. The front suspension travel can also be adjusted with three different-size travel limiters; spare C-clips and wheels nuts are included.



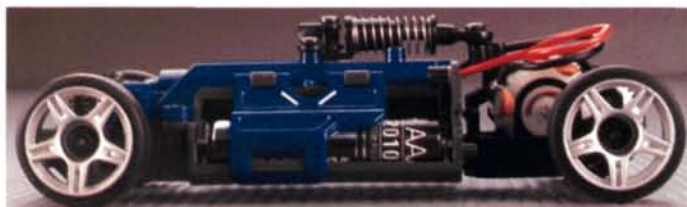
you'll need

- 4 AAA alkaline or rechargeable batteries
- 8 AA alkaline or rechargeable batteries

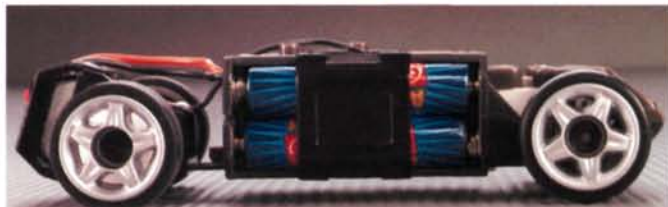
factory options

- Xspeed Mini-Z motor V—item no. MZW8V
- Ball-diff set—MZW206
- Ball-bearing set—MZW1
- Rear oil-shock set—MZW207
- Skeleton chassis (clear)—MZF201C
- Carbon rear suspension plate set—MZW205
- SP Delrin pinion gear set—MZW24
- Tie-rod set—MZW204
- Stainless-steel kingpin—MZW203
- Rear spring set—MZW202
- Front spring set—MZW201
- Inner antenna—MZW106

Partial list; many more options are available.



The MR-02 chassis (left) is designed with the batteries placed as low as possible for a low center of gravity, and the motor sits ahead of the rear axle for improved cornering stability. The original chassis is shown on the right.





Top: the front damper spring is mounted directly on the kingpin similar to a pan-car setup. Above: the underside of the chassis is very smooth; it won't snag on the surface it is running on. The two slots (arrowed) are used for removing the two innermost batteries from the chassis. Just push the edge of the battery retainer clip through the slot, and the battery will pop out.

SPECIFICATIONS

MANUFACTURER Kyosho
MODEL Mini-Z MR-02 Enzo Ferrari
DISTRIBUTED BY Great Planes Model Distributors

SCALE 1/28

PRICE \$160

(Price varies with dealer)

DIMENSIONS

Wheelbase 3.88 in./4.02

in./4.17 in.

(98mm/102mm/106mm)

Width (F/R) 2.8 in. (71mm)/2.95 in. (75mm)

WEIGHT

Total, as tested 6.29 oz. (178.5g)

CHASSIS

Type One-piece frame with integrated electronics
Material Plastic

DRIVE TRAIN

Type Solid-axle, direct-drive 2WD

Primary 6T pinion/44T spur gear

Transmission ratio 1:1

Final drive ratio 7.33:1

Drive shafts Solid metal axle

Differentials Plastic bevel gear

Bearing type Plastic bushings

SUSPENSION

Type (F/R) Kingpin/solid axle with floating rear pod

Shocks Undamped springs

WHEELS

Type One-piece plastic, 5-spoke

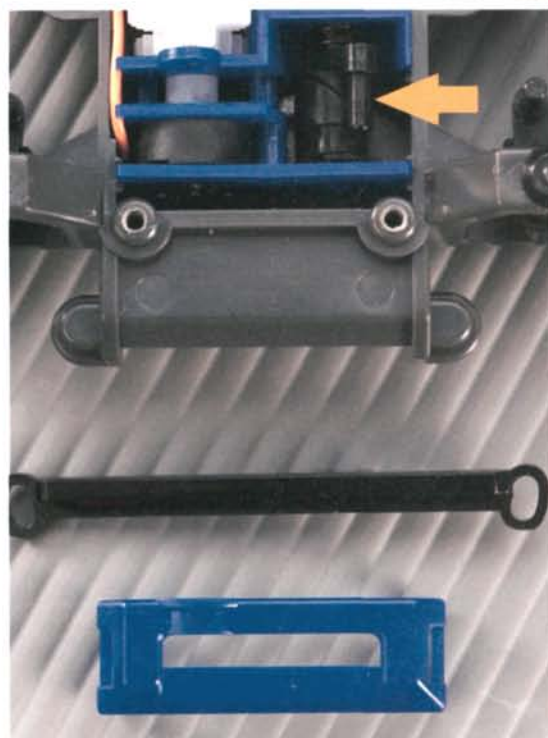
TIRES

Type Solid rubber slicks



A bevel-gear diff allows the Enzo to corner smoothly. When changing pinions, the black motor guides also must be switched so that the gear mesh stays properly set.

Right: the tie rod is easy to change; just pop off the blue retainer clip. An integrated servo-saver (arrowed) protects the servo from damage during impacts.



PERFORMANCE

The Kyosho Mini-Z MR-02 is easy to get ready for high-speed carpet action. Just install the batteries in the car and transmitter and screw the antenna into the chassis—done! I first tested the Enzo in the wide hallways of our office. The low-pile carpet provided a smooth, high-traction surface that let me push the car to its limits. A full clamp on the throttle sent the Mini-Z flying down the hall perfectly straight with no rear-end wandering. The new radio system allowed easy control, and straight driving was effortless.

I then sent the Ferrari through a series of corners and switchbacks to tests its handling. In this area, the MR-02 really stands out from the MR-01 because its chassis' new design allows the rear end to stay planted when cornering at fairly high speeds instead of looping out. The relocated motor transfers weight from the back of the chassis to a more central spot. The handling is just plain impressive. Its wide stance, low chassis height and low center of gravity make the Enzo incredibly sure-footed, and it felt as if it would only flip if it ran over something.

The radio system performed great without any glitching whatsoever (a problem the first Mini-Z had). I also ran the new Mini-Z on a hard kitchen floor; it struggled a bit to perform as well there as it had on the carpet. The solid rubber tires picked up some dirt and quickly lost traction, and that caused the car to spin fairly easily when getting on the throttle. If you are going to run the Mini-Z on a hard surface, just make sure it's clean.

OK; it was time for some speed runs in front of the radar gun, so we went out to the tennis courts behind our building with a fresh set of alkalines. I first ran the MR-02 with the stock 6-tooth pinion, and it ticked off an 10.9mph top speed. This may not sound like much, but when you consider that this car easily fits in the palm of your hand, it is quite respectable. Next, I slipped on the 9-tooth pinion to see how much more speed it could attain, and I recorded a 15mph top speed after a couple of runs. The acceleration suffered a bit with the higher gearing, but the increased speed buried that. I noticed that the new battery configuration does not allow the batteries as much cooling as the previous design did; although they got a little warm, it wasn't a big deal.

VERDICT

Kyosho has done an excellent job with the newly designed Mini-Z MR-02 chassis. The revamped chassis produces improved handling at higher speeds, and the car is controlled with a new glitch-free radio system and is topped with a body that makes it worthy of being displayed in a showroom. It's too bad that the original bodies don't easily fit on the new platform, but the gains of this new chassis overshadow this drawback. That it sells for about the same price as the original Mini-Z makes this pint-size car all the more appealing.

KYOSHO MINI-Z Cup

The Kyosho Mini-Z Cup is a brand-new race series with six regional races held across the U.S. and a final held at the end of the year to crown a national champ. The 2003 National Mini-Z Cup Championship will be held in November in Las Vegas, NV. There are three classes: stock, open and F1 open. The top six drivers in each class from each regional race have been invited to participate.

The MR-02 chassis isn't eligible to compete this year, but next year, it will be. For more information, go to Kyosho.com and click on the Mini-Z Cup icon.



RATING THE KYOSHO MINI-Z MR-02 ENZO

	POOR	FAIR	GOOD	VERY GOOD	EXCELLENT
INSTRUCTIONS	The instructions are very clear and include tuning tips.				
INCLUDED ELECTRONICS	The radio works great without any glitching but is a little small for large hands.				
PARTS FIT AND FINISH	The body and chassis make a nice, clean package.				
ACCELERATION	With the 6-tooth pinion, the Enzo can pull away faster than the original Mini-Z and is easily run in a straight line.				
CORNERING ABILITY	The new chassis design and brake allow the MR-02 to maintain speed going into corners instead of looping out.				
DURABILITY	The body isn't as resilient as Lexan, and the sideview mirrors can be knocked off.				

TOP SPEED, AS TESTED 15MPH*

BEST BUYER Ferrari fans, indoor drivers and anyone who appreciates scale detail.

* Top speed varies with equipment used.

LIKES

- > Ultra-realistic, display-worthy body.
- > Excellent drivability.
- > Just add batteries, and it's ready to run.

DISLIKES

- > Old Mini-Z bodies will not directly fit on new MR-02 chassis.
- > Transmitter is uncomfortable for large hands.

SOURCES

KYOSHO distributed by Great Planes Model Distributors (217) 398-6300; (800) 682-8948; kyosho.com.

HPI R40

HPI PRETTY MUCH STARTED THE WHOLE NITRO SEDAN RACING SCENE with its Nitro RS4 back in 1997, even though the original Nitro RS4 was never designed to race. HPI steadily improved the kit's performance with the Racer and Racer 2 versions, but as nitro touring cars evolved into smaller versions of 1/8-scale on-road machines, it became clear that a clean-sheet competition design was needed. The result is the car you see here: the R40. It's HPI's first "pro" sedan designed specifically for the track, and it's already a success with a big win at the 2003 ROAR Fuel Nats in the hands of team driver Atsushi Hara. But HPI's goals for the R40 went beyond performance: it had to be easy to tune and maintain as well. Now that it's here, we'll see if HPI's newest nitro ride delivers.





HARA SHOW!

PHOTOS BY JASON SAMIS

DECEMBER 2003 145

KIT FEATURES

CHASSIS. The R40's 3mm-thick, purple-anodized-aluminum chassis is race-ready and is dominated by a large opening for the bottom-loaded receiver pack. Along with the flywheel access hole, smaller openings under the diffs help debris exit the chassis before it fouls the drive belts, and naturally, all screw holes are countersunk. A screw-on plastic cover locks the receiver pack onto the chassis, and since the cover is thinner than the chassis, the pack actually sits lower than the top of the chassis plate; that's as low as low gets! In addition to keeping the pack low, the cover is centered on the chassis to minimize the R40's polar moment of inertia (confused? See the "Polar what?" sidebar). Up top, the R40 wears a 2.5mm graphite upper deck that holds the servos, the fuel tank and an enclosed receiver box. The throttle servo is installed in a "stand up" position, but the steering servo lies flat on its side to keep the car's CG low. Body clips secure the receiver box and fuel tank, and the servos can be taken out without removing the upper deck—very nice. Finishing touches include a pair of braces that bridge the upper deck and rear bulkheads and a plastic carrying handle/rollover hoop. The completed chassis looks ultra-slammed; HPI worked hard to keep all the components as low as they could go, and it looks as if no millimeter was left unshaved.

DRIVE TRAIN. Belt-drive still rules nitro touring, and the R40 uses a standard 3-belt arrangement with short front and rear belts and a long side belt. HPI's classic, indexed, cam-shaped diff-bearing holders allow the rear belt tension to be adjusted, and the side belt has an adjustable, roller-type tensioner. The belts are wrapped around a pair of silicone-filled, 4-gear diffs, and diff access is excellent: they can both be removed without disturbing the suspension arms or removing the bulkheads. Steel, universal-joint drive shafts connect the diffs to the axles. The shafts have a simplified joint design that uses the axle bearings to capture the joints' crosspins, so there's no need for the setscrew and pivot tube used in CV-type joints. Metal-shielded bearings keep the axles and all the drive-train parts rotating freely.

Engine power enters the drive train by means of an adjustable 2-shoe, clutch-type, 2-speed transmission that can be completely removed by releasing a single E-clip. The 2-speed shares its layshaft with the R40's single disc brake. The vented-steel brake rotor is squeezed by padded, steel-caliper plates, and a long plastic lever arm actuates the brake without flex of a traditional wire eyelet.

Polar what?

HPI had two goals for the R40's chassis: low center of gravity (CG) and minimum polar moment. The low CG part is easy to understand, but "polar moment of inertia" isn't a well-known term outside of physics books. Instead of worrying about the definition of "polar moment," consider this example. Imagine holding a 5-pound ball in your hand and rotating it with your wrist like a door-knob. Although it's heavy, you can rotate the ball back and forth easily. Now imagine that the ball is split in half, and the halves are joined by a 1-foot stick so it looks like a dumbbell (let's say that the stick is "weightless," so that the whole thing still weighs just 5 pounds). It will take significantly more energy to rotate the dumbbell, even though it weighs the same as the ball. That's because the dumbbell has a much longer polar moment of inertia. Minimizing polar moment by concentrating weight toward the center of the chassis is important to racecar design because it allows a car to rotate in the corners and transition from left to right (and vice versa) more quickly. The tires don't have to work as hard to steer the car, and more speed is maintained.

SUSPENSION AND STEERING. HPI combines a double-wishbone, pivot-ball front end with a rear pivot-ball/turnbuckle-camber-link combo to give the R40 a fully adjustable suspension. The front upper arms slide fore and aft to adjust caster, droop screws set ride height, and pivot-ball articulation allows camber, width and rear toe to be finely adjusted. To make certain that the pivot balls are threaded in to the correct depth, slip-on spacers fit over their shafts. Tighten the pivot ball until it bottoms out on the spacer, and presto! The setting is correct—no gauges or setup board required. Rear roll center is adjustable, and wheelbase can be adjusted with hinge-pin spacers at both ends of the car. Front and rear swaybars are also standard; the front unit is a "bladed" ball-and-cup design. By rotating its parts, you can set the "blade" "flat" for maximum flexibility or vertical for maximum stiffness—or anywhere in between. A cam adjuster is used to set swaybar "tweak." There's a conventional, wire-yoke swaybar in the rear.

The suspension squeezes threaded, composite-plastic shocks that are mounted on aluminum shock towers. Knurled aluminum collars set preload, and foam rings in the shock bodies handle volume compensation. The shocks' dual O-ring seals are bottom-loaded and secured by twist-on caps, so rebuilds are easy, and widely spaced shaft guides minimize shaft deflection.

The R40's steering gear is a relatively standard dual-bellcrank setup. An

BUILDING & SETUP TIPS

The R40 isn't hard to build, especially if a few nitro cars have already passed through your workshop. The manual is well illustrated but light on text, so pay close attention to the drawings and icons—and these tips:

STEP 1. Brake pads. The instructions tell you to use rubber cement to hold the brake pads on the calipers. I like to use thick CA because it dries much faster and holds better.

STEPS 4 AND 30. Pivot-ball spacers. Don't crush the spacers when you thread the pivot balls into the suspension arms; the balls just need to butt up against the spacers gently, and by doing it this way, you'll easily be able to pluck the spacer out.

STEP 8. 2-speed adjustment screws. Before you install them, paint the heads of the 2-speed clutch adjustment screws white so that you'll be able to spot them more easily in the recesses of the clutch shoes when you adjust the shift point later.

STEPS 17 AND 32. Universal drive shafts. To prevent the axles from sliding out of the bearings and allowing the crosspins to fall out,

install the onboard crosspins and drive hexes now instead of waiting until step 60 as suggested.

STEP 42. Shock springs. The rear springs are slightly longer than the fronts, but otherwise, they look identical. Don't mix them up, or your R40 will be totally tweaked.

STEP 53. Side belt tensioner. The instructions don't tell you how much tension should be put on the side belt. I like to set the roller so that there's about 1/8 inch of play in the belt.

you'll need

- Transmitter and receiver
- Steering and throttle servos
- .12 to .15 small-block, rear-exhaust engine with slide carburetor
- Exhaust manifold
- Tuned pipe
- Receiver battery
- Glow starter
- 200mm body
- Fuel
- Ni-starter

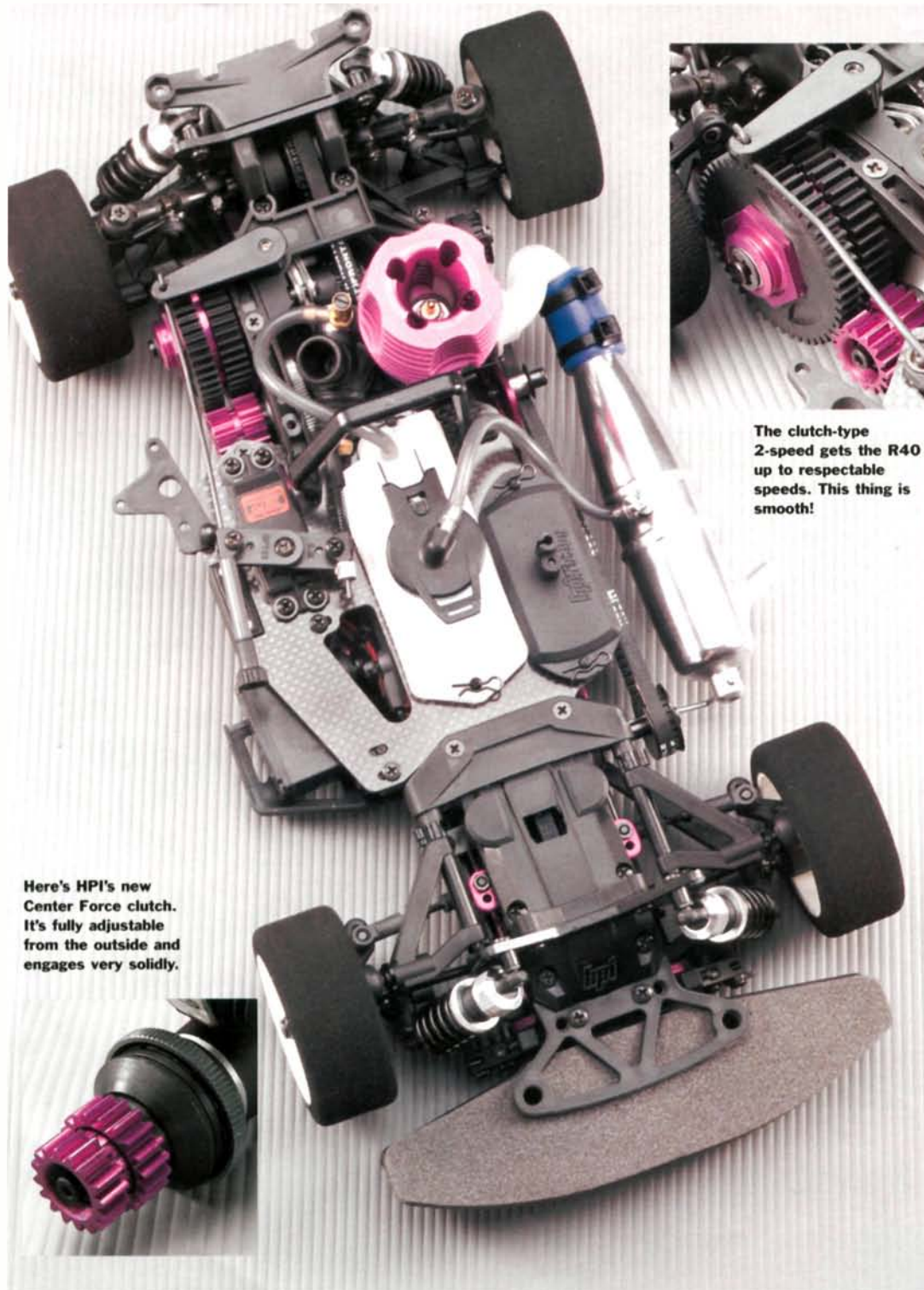
factory options

- Front one-way—item no. 75026
- Swaybar (medium)—75040
- Swaybar (soft)—75033

THE COMPETITION

MANUFACTURER/CAR	SUSPENSION	BEARINGS	DIFFS (F/R)	AXLES	CHASSIS	EXHAUST TYPE	PRICE	REVIEWED
HPI R40	Pivot-ball	Rubber-sealed	Gear	Universal	3mm aluminum	Rear	\$319	12/03
Mugen MTX-3	Pivot-ball	Rubber-sealed	Gear	Dogbone	3mm aluminum	Rear	\$369	RC Nitro 4/03
Serpent 705	Pivot-ball	Rubber-sealed	One way/ball	Dogbone	3mm aluminum	Rear	\$379	RC Nitro 8/03
Trinity G4 Pro	Pivot-ball	Metal-shielded	One way/gear	Universal	3mm aluminum	Rear	\$389	10/03

Price varies with dealer. Too many cars in category to list all.



Here's HPI's new Center Force clutch. It's fully adjustable from the outside and engages very solidly.

The clutch-type 2-speed gets the R40 up to respectable speeds. This thing is smooth!

SPECIFICATIONS

MANUFACTURER HPI
MODEL R40

SCALE 1/10
PRICE \$330
(Price varies with dealer)

DIMENSIONS
Wheelbase 10.24 in. (260mm)
Width 7.8 in. (198mm)

WEIGHT
Total, as tested 68 oz. (1,916g)

CHASSIS
Type Stamped plate
Material 3mm aluminum

DRIVE TRAIN
Type Triple-belt
Primary 16T/19T clutch-bell gears; 48T/45T spur gears
Transmission ratio 2.4:1
Final drive ratio 7.2:1/5.7:1
Drive shafts Universal
Differentials Silicone-filled bevel gear
Bearing type Metal-shielded ball bearing

SUSPENSION (F/R)
Type Upper and lower arm
Shocks Threaded-aluminum body

WHEELS
Type Multi-spoke

TIRES
Type Foam

ENGINE AND ACCESSORIES
Engine Not included
Exhaust Not included
Fuel capacity 75cc

Below left: pivot-ball suspension allows you to easily adjust the car's setup. Plastic-body oil-filled shocks damp the ride. **Below center:** want to remove the receiver battery quickly? Just take out two screws, and thar ya go. The battery-box cover sits perfectly flush with the chassis, and the box will accept only 5-cell laydown packs. **Below right:** a vented-steel disc brake slows the car—no pulsing or fading during our tests.



TRACK TEST HPI R40

adjustable servo-saver is built into the right bellcrank, and the aluminum drag link pivots on ball bearings and has two Ackerman positions. Steel-turnbuckle tie rods join the cranks to the steering knuckles, which each have a pair of ball-stud locations for additional Ackerman tuning options.

ENGINE AND ACCESSORIES. Like most competition nitro touring-car kits, an exhaust system, air filter and engine aren't included with the R40 (you'll need a rear-exhaust, slide-carb small-block), but all the gear required to install the engine is included. Two types of "engine nuts" are supplied to suit standard and SG-type cranks, and the included clutch is HPI's new Center Force design. Instead of "shoes," the clutch pushes a single donut-shaped disc against the clutch bell. A spring forces the disc away from the clutch bell as the engine returns to idle, and an adjustment nut sets the spring's preload; by varying

preload, you can set the clutch's engagement point very precisely. Threaded-on aluminum pinion gears complete the clutch assembly.

The engine is bolted to billet-aluminum mounts that are secured to the chassis with extra-strong 4mm screws (instead of the usual 3mm), and fuel flows to it from a center-mounted fuel tank. The tank actually sits on top of the receiver pack (don't worry; the pack has a plastic cover), and it's shaped so that the fuel pick-up is actually behind the pack—all in an effort to keep the fuel as low in the chassis as it can go.

BODY, WHEELS AND TIRES. The R40 includes race-ready, multi-ring foam tires. The rears are 30mm, 37shore, and the fronts are 26mm, 40 shore—glued and trued on mesh-type wheels. A body is not part of the package, but I kept it all in the family with an HPI Saleen Mustang shell.

PERFORMANCE

I took the R40 to a local track for a day of testing to see what it would be capable of. The short course had been set up with wide lanes with large sweeping turns. After a few warmup laps, I dropped the hammer. I first noticed how hard the car launched off the line—a little too hard for my taste. I brought the car over right away and loosened the clutch adjustment nut to allow the clutch to engage earlier. When I got on the gas after that, the car felt more controllable. It launched straight and hardly any corrections were needed to keep it that way. Before I knew it, I was on the brakes, which did a fine job of slowing the car down. There wasn't any pulsating, and I didn't notice any sign of brake fade as the day went on. Braking did affect the car's steering when it entered a turn; it caused the front end to push a little—nothing a little driver adjustment can't take care of. The 2-speed is ultra-smooth. The only way you know that gears are shifting is by the sound of the engine. The stock setting on the 2-speed was a problem for the short track; it shifted a little late going down the straight. I adjusted the tranny so that the gears shifted about a third of the way down the straight. Once I had adjusted the shift point properly, the car had some scary speed. I'm glad the brakes work well! Getting into the infield was a pleasure. This thing is hooked up. Chassis roll was minimal thanks to the car's low-CG design. I did notice that it pushed slightly when entering turns but felt good when exiting.

THE VERDICT

The R40 was a pleasure to build, it's easy to work on, and it handles well on the track. That's all anyone can ask for in a racecar. HPI already has a place in RC history as the company that made nitro touring huge, but with this design, it has firmly established itself as a genuine force in on today's racing scene. The R40 is a must-drive for any nitro racer who's angling for a new track weapon; just ask Atsushi Hara.

LIKES

- > Great instructions.
- > Sealed gear diffs.
- > Easy to work on.

DISLIKES

- > Kit comes with tires but without a body.
- > Universal pins fall out if you aren't careful.

TEST GEAR



JR XS3 radio

This radio is packed with features, but the one I love most is the frequency synthesizer. It makes life much easier when there's a channel conflict at the track, and since there aren't any crystals, I can truthfully say "No; I don't have any channel 68 crystals you can borrow," instead of lying to you (that's what you get for never returning my crystals last summer). The XS3 also has adjustable dead band, endpoints, exponential, 6-model memory and a comfy case design.

Additional items used to complete the R40

JR Z270 servos

Team Trinity Nitro Metal Hydride receiver pack

HPI 20% Power Fuel

HPI Saleen Mustang body

SOURCES

HPI RACING (949) 753-1099; hpiracing.com.

JR RACING distributed by Horizon Hobby (217) 355-9511; horizonhobby.com.

TRINITY PRODUCTS INC. (732) 635-1600; teamtrinity.com.



RATING THE HPI R40

	POOR	FAIR	GOOD	VERY GOOD	EXCELLENT
INSTRUCTIONS	The illustrations are clear, but some features aren't explained.				
PARTS FIT AND FINISH	Overall, the parts fit well and have a nice finish; a few had a little flashing that had to be removed.				
CORNERING ABILITY	The car works well from corner to corner, but with a little fine-tuning, it would feel much better.				
ACCELERATION	The clutch worked great and shot the car out of the hole every time.				
DURABILITY	I tagged the wall a few times while testing the car, but I didn't break any parts.				

RADAR-TESTED TOP SPEED 47.5MPH* **BEST BUYER** Experienced on-road racers

* Top speed varies with equipment used.

Nuova Faor SF501 Nitro Motorcycle

IF UNIQUE, ATTENTION-GRABBING VEHICLES get you excited, prepare to be blown away by one of the most unusual RC vehicles on the market: the Nuova Faor (NF) SF501 nitro motorcycle. This 1/5-scale beast boasts a highly functional suspension, .12 nitro power, a true chain drive and a realistic look that's sure to open eyes and drop jaws at local parking lots wherever you take it.





GAS-BURNIN' BIKE

PHOTOS BY JASON SAMS

DECEMBER 2008 159

KIT FEATURES

CHASSIS. The Nuova Faor SF501 motorcycle's twin stamped-aluminum plates are connected with large plastic spacers. The bike's basic rigid, light frame structure allows the radio gear and small-block .12 engine to be positioned for ideal balance. A large rectangular balance weight is attached to the lower chassis plate and close to the fuel tank to balance the cycle when it's upright. The cycle's large, metal fuel tank—the heaviest component when it's full—is mounted on the frame's lowest point where it stabilizes the bike when it's running.

DRIVE TRAIN. An incredibly realistic chain-and-sprocket drive train propels the bike. The SF501 engine's clutch bell (which houses a 2-shoe clutch with a wraparound spring) is mated with a large, machined-steel spur gear that's attached to a steel shaft with a small sprocket at the other end. The drive chain wraps around this small sprocket and is attached to the cycle's main drive sprocket at the rear wheel. An adjustable chain tensioner is built into the rear swing arm. The front wheel has a single fiber disc brake that's clamped with two metal pads that are actuated by a long control wire.

SUSPENSION AND STEERING. Up front, the cycle's scale-looking, dual-fork front suspension has two friction dampers. The front shafts are inserted into the lower tubes and damped by stiff springs at the base of these tubes. Nuova Faor recommends that you pour a few drops of shock oil into the tubes to smooth suspension action, but the front forks are not oil-filled shock absorbers. The bike's one-sided rear, swing-arm suspension pivots on an inner hinge and is damped with one, aluminum-body, coil-over shock absorber. This comes filled with shock fluid of an undisclosed viscosity, and it provides excellent damping. To steer the bike, a simple pushrod system connects the steering-servo horn to the front, pivoting, steering assembly. The box-stock system has a short piece of fuel tubing connected to the steering-servo horn as a damping/servo-saver type assembly, but at the distributor's suggestion, I chose to install NF's optional spring-loaded servo-saver system.



When it isn't on the track, the SF501 makes a great-looking display model, and the included aluminum stand holds the bike upright.

ENGINE AND ACCESSORIES. The bike doesn't include an engine, and the field of potential candidates is a little thin because of the precise fit requirements of the bike. Fortunately, NF offers a Novarossi engine made specifically for this motorcycle; it's a .12 pull-start with a slide carb, a threaded short-shaft crankshaft and a side exhaust. It's very powerful and fits the bill perfectly, so that's what I installed. A long, scale-looking aluminum tuned pipe and rubber coupler are included, and so is a metal fuel tank. On the top of the tuned pipe, there's a fitting that pressurizes the tank for consistent fuel delivery. A fitting on the bottom of the pipe has no apparent purpose except perhaps to drain away excess oil and fuel residue; if this is the case, you'd have to attach a length of fuel line to it or oil and exhaust residue will be blown all over the swing arm.

BODY, WHEELS AND TIRES. A molded Lexan body and a driver figure complete the scale look. I sent them both off to Bill Zegers of Zegers Grafix for a replica 2003 Suzuki GP team paint job, and the results speak for themselves. The body alone gives the bike a perfect scale appearance, but the two-piece molded driver could have been molded better. I joined the halves with servo tape and attached the driver to the seat; use tape or glue to do this.

To protect the body during a crash, large wire nerf bars are included, but they detract from the bike's scale appearance, so install them only when you plan to run it. Large, 3-spoke aluminum wheels and treaded rubber tires with foam inserts are included.

Bike-handling basics

Driving an RC motorcycle is not the same as driving an RC car. With a car, you turn the transmitter wheel to the left to turn the front wheels to the left. With the bike, the opposite is true: its front wheel turns in the opposite direction to the radio input. Just flip the servo-reversing switch so that when you turn the steering wheel on the transmitter to the left, the Cycle also goes left even though the wheel will be physically turning to the right.

Turn the transmitter wheel until the bike leans and turns at the desired rate; then return the wheel to the neutral position and it will continue to turn. Applying throttle or brake alters its turning radius. If you squeeze the trigger for more throttle, the bike will stand up and go straight; conversely, applying brake tightens the radius. If you don't alter the throttle settings at all, you'll have to turn the transmitter wheel in the opposite direction to get the bike to come out of a turn.

BUILDING & SETUP TIPS

The SF501 isn't an easy build for first-timers, as several assembly steps are vaguely described or incomplete. These tips will help guide you in the right direction, and if you already have some building experience, things should go fine.

STEERING LINKAGE. The SF501's stock steering linkage has a short piece of fuel tubing to act as a steering "servo-saver." At Internet R/C's suggestion, I replaced this with the optional spring steering support (item no. X80A); it provides more precise, predictable steering.

BODY ASSEMBLY. The instruction manuals skip the body- and driver-mounting steps. Trim the motorcycle body so that the spur gear and clutch bell are exposed; if you don't, the gears will grind into the Lexan body so the drive train won't be able to spin smoothly. Also, trim the driver pieces carefully, and test-fit them together before you trim away important pieces. The body doesn't have molded-in trim lines, so you'll have to use your best judgment and remove a little Lexan at a time until the driver fits properly.

RECEIVER AND RECEIVER BATTERY

The SF501's instruction manual doesn't tell you how and where to mount these; I mounted the Novak micro receiver on the right rear of the chassis (opposite the exhaust pipe). Secure the receiver battery underneath the chassis with double-sided servo tape and a few pieces of strapping tape or electrical tape.

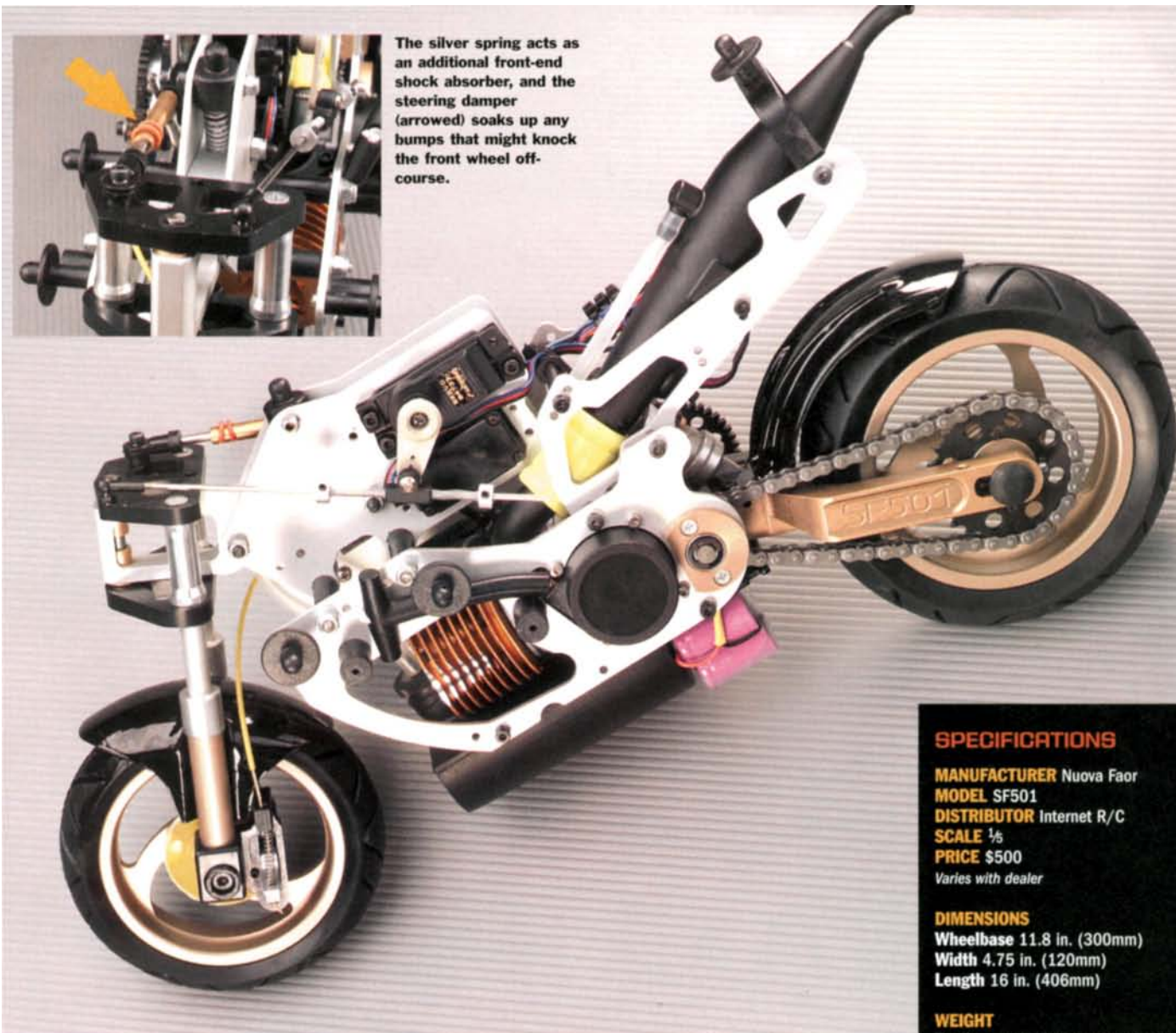
you'll need

- Transmitter & receiver
- Steering & throttle servos
- Fuel & fuel bottle
- Glow igniter
- Thread-lock compound
- Receiver battery
- Polycarbonate-friendly paint
- CA glue

factory options

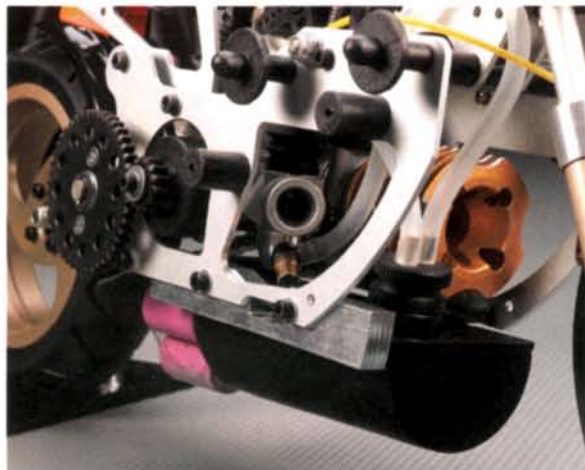
- Titanium muffler—item no. X226
- 3-point clutch—X215
- Metal front disc brake in with metal and Ferodo brake pads—X115/X114
- Steering support with springs for steering rod—X80A
- Motorcycle carrying case—X106

The silver spring acts as an additional front-end shock absorber, and the steering damper (arrowed) soaks up any bumps that might knock the front wheel off-course.



Below: the clutch bell sticks out on the right side of the frame and is mated with the machined-steel spur gear. When the motorcycle is running, the heavy, metal fuel tank and a weight on the frame's lowest point enhance stability.

Right: the realistic-looking rear end features an authentic metal chain and a one-sided swing arm where the rear sprocket is mounted. The screw that's indicated by an arrow is used to adjust chain tension.



SPECIFICATIONS

MANUFACTURER Nuova Faor

MODEL SF501

DISTRIBUTOR Internet R/C

SCALE 1/5

PRICE \$500

Varies with dealer

DIMENSIONS

Wheelbase 11.8 in. (300mm)

Width 4.75 in. (120mm)

Length 16 in. (406mm)

WEIGHT

Total, as tested 73.2 oz. (2,075g)

CHASSIS

Type Twin-plate box frame

Material Stamped aluminum

DRIVE TRAIN

Type Chain drive

Primary Clutch bell/spur

Bearing type Metal-shielded ball bearings

SUSPENSION

Type (F/R) Inverted fork/one-sided swing-arm

Damping (F/R) Friction/coil-over, aluminum oil-filled

WHEELS

Type 4-spoke anodized-aluminum

TIRES

Type Treaded rubber

ENGINE AND ACCESSORIES

Engine (not included) Nuova Faor/Novarossi CX12 w/pull-start

Carb Twin-needle slide

Exhaust Aluminum tuned pipe

Fuel capacity 80cc

PERFORMANCE

After scoping out an empty, freshly paved mall parking lot, I set up my gear and fired up the engine. It's best to break the engine in and get its needle settings dialed in to allow it to idle well before you install the body; if you don't, you'll constantly have to remove and reinstall the body to get to the pull-start mechanism. Luckily, the .12 easily holds an excellent idle when given a decent tuning.

Acceleration is astounding, and with 1hp on tap, it's almost possible to pull wheelies when traction is ideal and the engine has been tuned for maximum performance. Braking is another issue, especially if you haven't set up the brake system properly; if you don't have a delicate brake-trigger finger, you'll find it difficult to bring the bike to a safe stop. If you lock up the front wheel, you'll instantly skid and be wrecked, but with practice, coming to a controlled, gradual stop is easy.

The bike runs best when it's allowed to make gradual sweeping turns and direction changes; if you alter course abruptly, you risk toppling it and losing control. Luckily, the wire nerf bars protect its sides. Don't expect to weave through tight spots until you have had plenty of wheel time with it, and even then, you'll find it difficult to pull off a sharp leaning turn without scraping its sides. Learning to drive it presents a challenge that's similar to learning to ride a full-size bike. After feeling awkward for a few tanks of fuel, you'll get a feel for how it handles, and from then on, driving it will come naturally.

It's easy to forget that you're driving an RC motorcycle as you lean into corners and blast out of them. The bike's motions mimic those of a full-size bike in every way, with the possible exception of its speed-to-size ratio: I estimate its top speed to be 45mph—like 225mph on a full-size bike. Oh; and get ready to make plenty of new friends because a large, nitro-powered RC motorcycle draws more attention than any 4-wheeler ever could.

THE VERDICT

The Nuova Faor nitro motorcycle presents several assembly and driving challenges, but given some attention to detail, it will reward its owners by being a unique, scale-looking RC vehicle that delivers speed and fun in large doses. I'm especially fond of its incredible acceleration and how it looks when it scoots through a parking-lot course. It's unlike any RC vehicle I've driven in my 16 years of RC. It isn't cheap, and its assembly is challenging, but the Nuova Faor Nitro Motorcycle delivers a true-to-scale appearance and a high-speed performance that will make any experienced RC guy overlook such minor details and enjoy it for exactly what it is: a fast, fun departure from the every day 4-wheel RC car.



LIKES

- > True-to-scale appearance.
- > One of the most unusual RC vehicles on the market.
- > Astounding acceleration and top speed.

DISLIKES

- > Time-consuming assembly following two manuals.
- > Minor parts fit and quality problems.
- > Molded-Lexan rider figure isn't realistic.

TEST GEAR



Futaba 3PDF transmitter

The 3PDF's glitch-resistant FM signal is perfect for nitro-powered vehicles, and its digital trims make dialing in your settings a snap.

Other items used to complete the SF501:

Novak XXL receiver

Novarossi/Nuova Faor CX12 pull-start engine

Airtronics 94102 standard servos

O'Donnell 20%-nitro fuel

SOURCES

AIRTRONICS (714) 978-1895; airtronics.net

DURATRAX/O'DONNELL distributed by Great Planes Model Distributors (217) 398-6300; (800) 682-8948; duratrax.com

FUTABA distributed exclusively by Great Planes Model Distributors Co. (217) 398-6300; (800) 682-8948; futaba-rc.com

NOVAK ELECTRONICS INC. (949) 833-8873; teamnovak.com

NOVAROSSİ distributed exclusively by Trinity Products Inc. (732) 635 1600; teamtrinity.com

NUOVA FAOR distributed by Internet R/C (602) 347-1600; internet-rc.com

ZEGERS R/C GRAFFIXX (561) 988-5411

RATING THE NUOVA FAOR SF501 NITRO MOTORCYCLE

	POOR	FAIR	GOOD	VERY GOOD	EXCELLENT
INSTRUCTIONS	CAD drawings are a plus, but several steps aren't clearly described.				
PARTS FIT & FINISH	The machined and stamped parts are well finished, but the Lexan body and driver figure could have been molded better.				
CORNERING ABILITY	The SF501 corners very well for a motorcycle, and on smooth surfaces, it's easy to balance.				
ACCELERATION	The bike's lightness with the Novarossi/NF .12 engine equals rocket-like acceleration.				
DURABILITY	With the included nerf wings installed, the bike takes plenty of abuse and stays in one piece.				
ESTIMATED TOP SPEED	45MPH*				
BEST BUYER	Experienced builders who love scale looks and high performance.				

* Top speed varies with equipment used.

Yokomo MR-4TC Mini

YOKOMO'S NEW 1/12-SCALE MR-4TC MINI MAY BE SMALL IN SIZE, but it's big on features. The Mini has a fully adjustable 4WD race chassis that borrows much of its design from its former world champ, 1/10-scale big brother: the MR-4TC. The full-graphite Mini's features include ball bearings, racing slicks, adjustable ball differentials, a dual-belt drive train and a Dodge Stratus body. What on-road enthusiast wouldn't want to take the wheel of this small, decked-out touring car? I couldn't pass up the opportunity, and now it's time to take some hot laps.





THE RETURN OF 1/12 TOURING!

KIT FEATURES

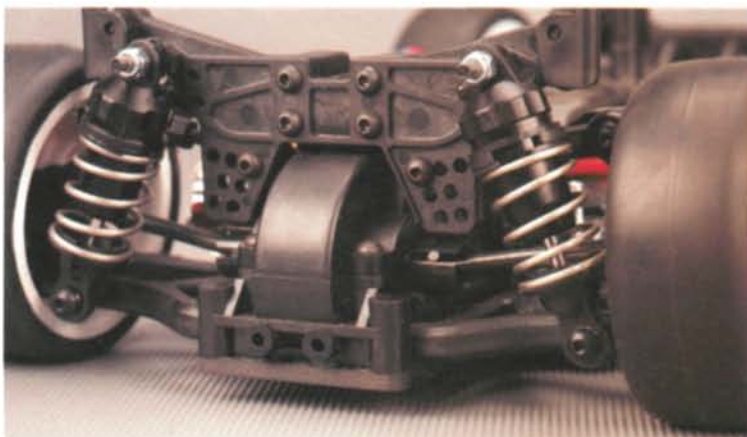
CHASSIS. The double-deck, carbon-fiber chassis with its 3.5mm-thick lower chassis plate makes the Mini as rigid as a brick. Four battery slots cut out on the right side secure a 4-cell battery pack; that leaves the left side clear for the electronics, and that balances the Mini pretty well.

Six milled-out channels and three triangular cutouts just underneath the motor allow a constant airflow that helps the motor run cool. All of the screw holes are countersunk for a clean underside. Toward the front of the chassis, the front steering plate is snapped into place to eliminate almost all front-end flex. A 2.5mm graphite upper deck is attached to the chassis with eight screws to provide a rigid backbone, and a graphite battery strap secures the cells.

DRIVE TRAIN. Two externally adjustable ball differentials are enclosed in the Mini's front and rear bulkheads. The silky-smooth diffs are the ones used in the larger MR-4TC, and they glide on metal-shielded ball bearings. Molded plastic outriggers reduce the rotating mass to give the Mini brisk acceleration. Universal axles drive all four wheels, and thick (3mm) drive belts ensure that the motor's power is distributed evenly to the front and rear wheels. A front belt tensioner prevents the belts from skipping on the pulleys, and it allows adjustments if the belt stretches. The Mini includes a 78-tooth spur gear and a 26-tooth pinion gear; they provide a ratio that is ideal for stock motor racing. The motor is attached to a separate aluminum motor mount that helps dissipate heat.

SUSPENSION AND STEERING. Four oil-filled shocks sit at the corners of the MR-4TC Mini. The plastic-body shocks come with a variety of preload spacers for precise ride-height adjustment. The front shock tower has three shock-mounting options, and the rear tower has five upper shock-mounting holes. The four beefy lower A-arms anchor the shocks with just one lower mounting position.

The arms pivot on captured, polished stainless-steel hinge pins—no E-clips here—oh, yeah! Threaded steel rods allow front and rear camber adjustments, but you have to remove



There is a lot of adjustment in the rear of the Mini; the rear tower has five shock anchoring holes and there are seven camber-link positions. By removing eight screws, the rear differential can be accessed for routine maintenance.

one of the links to make these adjustments. The dual-bellcrank steering system pivots smoothly on metal bushings, and a built-in servo-saver on the right bellcrank protects the servo in a crash.

BODY, WHEELS AND TIRES. The MR-4TC Mini is outfitted with a set of standard 1/10-scale sedan hoops. The rims are paired with Yokomo medium-compound racing slicks and medium-firm foam inserts. The thin inserts allow a slight air gap in the tires to provide additional traction.

A mini Dodge Stratus body is included with the kit. The Stratus is a favorite with 1/10-scale racers, and it looks really sharp on the Mini. The clear Lexan body needs to be painted, so you can let your imagination run wild. Molded-in body-post dimples simplify installation, and the deeply scribed body makes body trimming easier.

BUILDING & SETUP TIPS

All the parts on the MR-4TC Mini fit together nicely, but you have to remove flashing from most of the plastic parts. Be sure to read the supplemental instructions carefully before assembly. Pay close attention to the small captions that are near the bottom of the pages in the main instructions. These captions indicate when and where you must refer to the supplemental instructions. If you follow these helpful tips, your Mini will operate as smoothly as butter.

STEP 8. Servo-saver assembly. In the supplemental instructions, an illustration shows ball studs threaded into holes that are not supposed to be used. Disregard the illustration and instead follow the directions given in the small caption that tells you to use the outer holes. The illustration is incorrect.

STEP 15. Front and rear universal assembly. The front

dogbones and the rear dogbones are different lengths; so are the axles. The longer dogbones belong up front with the short axles, and the shorter dogbones are paired with the long axles to propel the rear wheels. These must not be mismatched, so pay close attention. After installing the axle crosspins, place a small drop of threadlocking fluid on the small setscrew that secures the pins. This gives you extra insurance against the setscrew's backing out.

STEP 21. Battery-post installation. The supplemental instructions indicate that you should use 3mm spacers under the battery-mounting posts. I found that those spacers allowed too much play in the battery brace that holds down the battery pack. This play allowed the pack to move around in the chassis, but after I had removed the spacers, the pack fit nice and snug.

you'll need

- Transmitter & receiver
- Electronic speed control
- Motor
- 4-cell battery pack
- Steering servo
- Charger
- Tire glue
- Lexan-compatible spray paint

factory options

- Front one-way—Item no. ZS-540T
- Lightweight main gear adapter—ZS-630A
- Hollow center shaft—ZS-644T
- Nylon, flanged locknuts 3mm/4mm (blue)—ZC-N3AB/ZC-N4AFB
- Aluminum nuts 3mm (blue)—ZC-NAPB
- Pro shock springs (hard)—YS-1460
- Pro shock springs (super hard)—YS-1450
- Pro shock springs (extra hard)—YS-1455
- Titanium-coated shock shafts—YS-53S-4T
- Aluminum threaded shock set—YS-1SSS-5
- Adjustable body mounts (5mm)—ZS-ABM5
- Aluminum hub clamps (blue)—ZS-011C
- Front anti-roll bar kit (3)—ZS-412FSP
- Rear hub carrier 1 deg./2 deg.—ZS-415R1L/ZS-425R2L
- Front bulkhead, 1 deg. kick-up—ZS-300FT1
- Rear bulkhead, zero deg. kick-up—ZS-300RT0



The front shock tower has three shock-mounting holes for adjustments, and universal axles drive the front and rear wheels. Threaded upper links allow camber and toe adjustment but you have to remove the captured ends first.



SPECIFICATIONS

MANUFACTURER Yokomo
MODEL MR-4TC Mini
DISTRIBUTED BY Yokomo U.S.A.
SCALE 1/12
PRICE \$180
(Price varies with dealer)

DIMENSIONS

Wheelbase 8.19 in. (208mm)
Width 6.69 in. (170mm)

WEIGHT

Total, as tested 45.5 oz. (1,290g)

CHASSIS

Type Double-deck plate
Material Woven carbon fiber

DRIVE TRAIN

Type Dual-belt 4WD
Primary Pinion and spur gears
Transmission ratio 2.2:1
Final drive ratio 6.6:1
Drive shafts Steel universals
Differentials Ball-type with lightweight plastic outdrives
Bearing type Metal-shielded ball bearings

SUSPENSION

Type Lower A-arm with adjustable upper camber links
Shocks Plastic-body, coil-over, oil-filled with polished-steel shafts

WHEELS

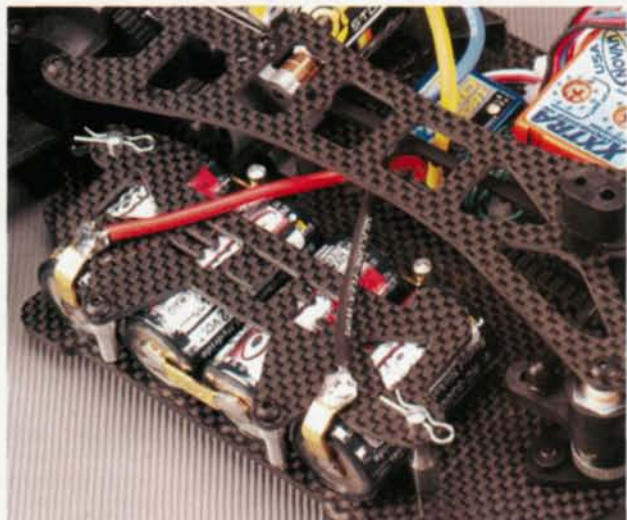
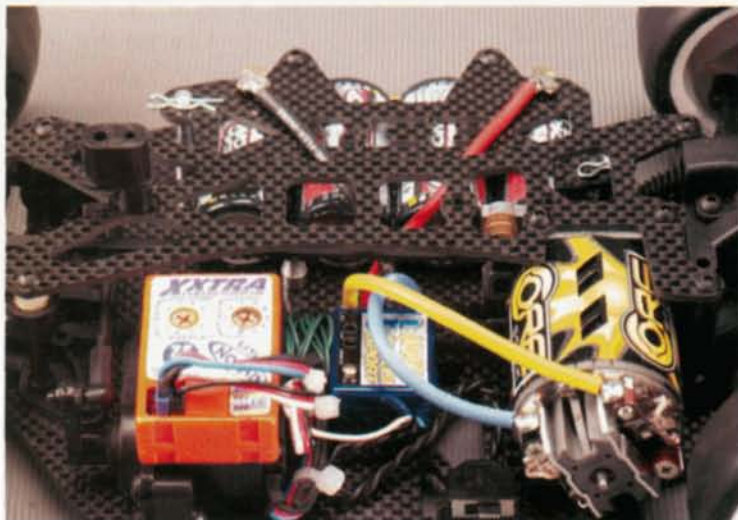
Type White Aero dish

TIRES

Type Yokomo medium-compound racing slicks

Below left: the upper deck is attached to the bulkheads. That gives the Mini a solid backbone that supports both the front and rear. Cutouts in the carbon-graphite piece reduce weight.

Below right: unlike 1/10-scale cars, the Yokomo Mini is powered by a 4-cell battery pack instead of the traditional 6-cell pack. A carbon-graphite brace secures the pack and gives the car a factory look.



PERFORMANCE

The low center of gravity and low ride height of the Mini were a perfect fit for the smooth asphalt surface at Hot Rod Hobbies in Saugus, CA. The newly paved oval track is well-known for providing lots of traction, especially when the summer heat kicks in. I set up the car to have 4.5mm of ride height and made the camber and toe links precisely the size directed in the instructions. This gave the car negative 2 degrees of camber at all four corners.

Before I put the pedal to the metal, I took a few practice laps to get used to how the car handled. The first thing I noticed was that the car is extremely responsive to both steering and throttle inputs, so I dialed out nearly 30 percent of the total steering travel with the dual-rate function on my radio to tone down the Mini's lightning-quick steering response. Once the steering was where I wanted it, I darted to the inside of the oval track to see just how the Mini could handle the lefty corners. The car was surprisingly planted. Although the steering throw had been significantly reduced, the Mini had no problems hooking around tight corners. Turns two and four on the oval were also a blast because the Mini kept its composure without pushing.

After burning through a couple of packs on the track's smooth surface, I headed to a grocery-store parking lot. Its surface was slightly rougher and significantly dustier. As expected, the rear end felt looser because of the type of surface the car was running on. It was fun and quite challenging to set the Mini into a gnarly drift and then try not to hit any of the cement parking curbs.

Before I finished the session, a crowd of kids came over to watch the Mini tear up the lot. After answering a couple of questions from the curious little guys, I inspected the car to check its condition. It was pretty dusty and I had scratched the bottom of the chassis, but nothing was broken. The tires showed signs of wear, but controlled slides and donuts are really hard on rubber slicks.

THE VERDICT

Yokomo's MR-4TC Mini is a blast to drive because it is super quick, responsive and very cool looking. Rougher streets and poorly maintained parking lots will cause the Mini's handling to feel less stable because of the car's super-low ride height and short wheelbase. The Dodge Stratus body finishes off the chassis quite nicely and gives the car a race-worthy look. Right now, there isn't a sanctioned racing class for 1/12-scale 4WD touring cars, but simply running this infectious little car at your local track might just start something big.



LIKES

- > Smooth drive train.
- > Very planted handling.
- > Durable construction.
- > Super fast with a stock motor.

DISLIKES

- > Threaded links instead of turnbuckles.
- > Foam bumper requires major trimming.

TEST GEAR



Mtronics

M3 Cubic Ultimate ESC

The Mtronics M3 was a perfect choice for the cramped chassis of the MR-4TC Mini. The feature-filled M3 accepts motors as low as 8 turns and is easy to set up with its one-button digital programming software. Global Hobby claims that the M3 ESC is the smallest and lightest in the world. The M3 is also waterproof; even if you submerge it in water, it won't go "poof," but it will shut off until it's out of the water.

Additional items used to complete the Yokomo MR-4TC Mini

Airtronics 94737 steering servo

Novak XXtra receiver

Team Orion Sanyo 3300 cells

Team Orion Core stock motor

Team Losi tire glue

JR Racing XR3I transmitter

RATING THE YOKOMO MR-4TC MINI

	POOR	FAIR	GOOD	VERY GOOD	EXCELLENT
INSTRUCTIONS	Study the supplemental instructions carefully, and be sure to look for the captions on the main instructions.				
PARTS FIT AND FINISH	Everything fits together perfectly, but some of the plastic pieces needed flashing removed to prevent them from binding.				
CORNERING ABILITY	The Mini steers very aggressively because of its short wheelbase. Dial out some throw for best handling.				
ACCELERATION	The Mini flies like a rocket ship with only 4-cells and a stock motor.				
DURABILITY	I avoided any hard crashes, but the oversize bumper should protect the Mini in most part-breaking collisions.				
RADAR TESTED TOP SPEED	24MPH*				
BEST BUYER	On-road enthusiasts who are looking for something smaller, quicker and unique.				

* Top speed varies with equipment used.

SOURCES

AIRTRONICS (714) 978-1895; airtronics.net.

HORIZON HOBBY INC. (800) 338-4639; horizonhobby.com.

JR RACING distributed by Horizon Hobby Inc.

MTRONICS distributed by Global Hobby Distributors (714) 964-0827; globalhobby.com.

NOVAK ELECTRONICS INC. (949) 833-8873; teamnovak.com.

TEAM LOSI distributed by Horizon Hobby Inc.; horizonhobby.com.

TEAM ORION INC. (714) 694-2812; team-orion.com.

YOKOMO USA (949) 252-8663; yokomousa.com.

firstlook >>>

OFNA Racing has made a big name for itself in 1/8 scale nitro with the Ultra, Hyper and 9.5 series RTRs and competition-bred racing buggies. Well, it just added two more buggies to its lineup, and they include many unique features that have never been offered in vehicles of this type before.

We were fortunate to acquire early production samples of the new Hyper 7 PCR (Paul Coleman Racing) and the 9.5 Violator RTR buggies for this in-depth "First Look." They aren't drivers, so our performance verdicts will have to wait.

Meanwhile, we've got plenty of pictures to show you what these hot new buggies are all about.

HYPER 7 PCR

INSIDE ofna's new big bug

VIOLATOR



by George M. Gonzalez

gies

INCLUDED ELECTRONICS & ACCESSORIES

The Hyper 7 PCR and 9.5 Violator will both include Airtronics Blazer Sport radio systems and a pair of standard 94102 servos. They'll also have a fuel bottle and an alkaline glow igniter to get you started quickly and affordably. The Violator will have a two-compartment nylon carrying bag and OFNA's new Shaft-Start electric engine starting system, while the Hyper 7 PCR will include a starter box to crank the non-pull-start engine over.



9.5 Violator

The super-wide OFNA 9.5 Violator breaks the rules with its increased width (for improved stability) and larger (135cc) fuel tank that keeps the powerful Force .26 pull-start engine running longer between fuel stops. The Violator may not be legal for sanctioned racing, but its width, larger fuel tank and .26 engine will be welcomed by club racers and play drivers. The Violator is loaded with many other hot features, including: an all-new, offset-kingpin suspension; hard-coated, threaded-body, aluminum shocks; quad disc brakes; a hard-coated chassis with kick-up; front, CVA-type drive shafts and more. Topping off the chassis is a beautiful, screen-printed body, and the racing-rubber tires are bonded to the wheels to get you out racing in no time flat.



The center diff's steel spur gear enhances durability. The quad brake rotors should provide plenty of wheel-locking braking power. A molded splashguard prevents fuel from spilling over the front brake rotors during rushed fuel stops. Like all of OFNA's other RTR buggies, standard Airtronics 94102 servos operate the throttle and brake levers and swing the steering bellcranks.



According to the guys at OFNA, the Force .26 has gobs of torque for getting the holeshot and clearing the triples. A cast-aluminum manifold and a polished-aluminum pipe let the engine breathe better for increased power and lower engine running temps. A 3-shoe racing clutch and a 14-tooth, bearing-supported steel clutch bell are also installed on the engine. The engine shown here has a standard pull-start, but the production Violators will have OFNA's new Shaft-Start system. This includes a hand-held starter, a long starting shaft and an engine backplate; you'll need only to supply a 7.2V battery pack.



The Violator gets its wide stance from its extra-long 330mm suspension arms—no wide-offset wheels here. If you want to compete in a sanctioned race, you can shorten the suspension arms to meet ROAR's maximum-width rule; you'll also have to swap the fuel tank and engine for ROAR-legal ones. A thick piano-wire swaybar keeps the chassis flat in the corners. These are the same hard-coated, threaded-body shocks as you'll find on the 9.5 Pro racing buggy. As you can see, there are plenty of mounting options for the shocks and upper arms, so you can tune the suspension to your heart's delight.



Unlike the standard C-hub suspension on the 9.5 RTR and 9.5 Pro buggies, the Violator uses an offset-kingpin design. It provides ultra-smooth suspension movement, and OFNA claims that it's even more durable than the C-hub suspension. The cast-aluminum steering knuckles look stout, and steel turnbuckles allow front camber adjustments. The steel CVA-type drive shafts are standard issue, and the production cars will include shorter front drive shafts and rear dogbones so that you'll be able to run the buggy narrow.



The rear hub carriers, shock tower and suspension arms have tons of mounting options for the shocks and rear camber links. This photo clearly shows the extra inner suspension-arm hinge-pin hole that allows you to reduce the buggy's width. If you do this though, you'll only be able to return to the former width setting by buying new suspension arms. Steel turnbuckles allow you to adjust rear camber, and a rear swaybar is included.

The buggy arrives fully assembled with the Force .26 engine and Airtronics radio gear installed on the chassis. The radio box is divided into two compartments—one for the receiver and the other for the 4-cell battery holder.



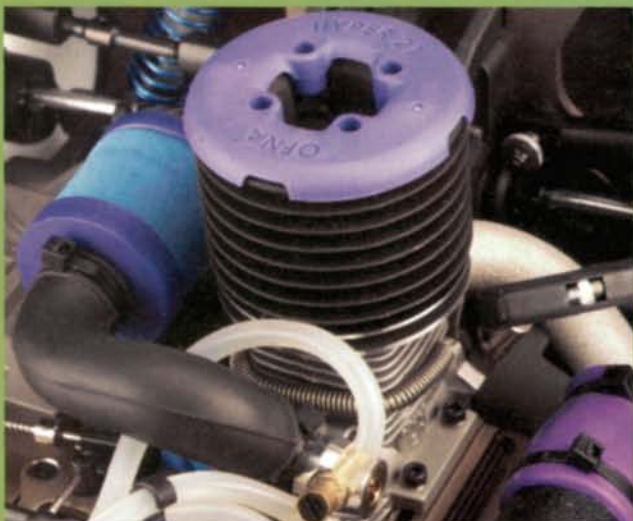
A hard-coated, 6061 T-6-aluminum chassis is standard on the 9.5 Violator (it's an expensive option on many comparable buggies). All the screw holes are countersunk, and the engine-mounting screw holes are slotted and recessed, too. The chassis has a front kick-up to make it more stable over the bumps and jumps. If you want to use a starter box to crank the engine, there's an opening in the chassis for the flywheel to protrude through. I doubt that anyone will use a starter box, since the engine has the new easy-to-use OFNA Shaft-Start system.



As this shows, the Violator is considerably wider than the average buggy. This makes it far more stable in corners and when tackling bumps and jumps.

Hyper 7 PCR RTR

This is OFNA's latest assault in the $\frac{1}{8}$ -scale RTR buggy wars. Don't let the fact that this buggy arrives fully assembled persuade you that it's merely a "basher buggy"; the Hyper 7 PCR has all of the elements that make a great racing buggy: a completely adjustable pivot-ball suspension, hard-coated aluminum shocks with 3.5mm shock shafts, horizontally mounted steering and throttle servos, hard-coated 6061-T6 aluminum chassis, an 8-port racing engine and much more.



The Hyper PCR is powered by OFNA's powerful Hyper 21 8-port non-pull-start engine. Like the Hyper 7 PBS, the Hyper PCR will include a starter box to crank the engine over. The engine includes a molded head protector to prevent the cooling head from being scraped during rollovers and a unique, rubber, air-filter mount that positions the filter on the right side of the engine to facilitate body mounting. Although it isn't shown here, the air filter is secured to an aluminum mount for security. The exhaust is directed through a cast-aluminum manifold and a dual-chamber tuned pipe.



The steering and throttle servos are mounted horizontally and flush with the chassis to lower the vehicle's CG. The throttle servo swings a bearing-equipped bellcrank that's mounted on the tiny radio plate. A handy transponder mount that accommodates standard and personal AMB lap-counting transponders is attached to the radio plate. As you can see, the front brake rotor is protected by a huge splashguard to prevent fuel from contaminating it.



The 125cc fuel tank has internal baffles to prevent the fuel from splashing around and foaming. The pressure and fuel lines are neatly arranged, and a nice-looking purple-anodized-aluminum fuel filter prevents dirt from entering the carburetor.



The Hyper PCR's pivot-ball suspension has been revised with new upper suspension arms. Caster is now adjustable between 17 and 35 degrees for additional tuning capability. Front and rear camber, toe-in and subtle width adjustments are also possible. Shiny, steel, CVA-type drive shafts are standard up front. The hard-coated shock bodies are new.



The rear and center dogbones are made of super-tough 7075 aluminum that doesn't bend. The thick (3.5mm) shock shafts should be able to withstand serious abuse. The shock towers and suspension-arm pivot plates have a nice bronze-anodized finish to match the radio tray and center diff brace.



This is what the chassis looks like when you open the kit box. The engine and radio gear are installed on the chassis, and the wheels are bolted to the hubs. All you have to do is install 4 AA cells in the battery holder and install the body, and you're ready to go.



The hard-coated 6061-T6 aluminum chassis is rigid and resistant to being scratched. All of the screw holes are countersunk, and the engine-mounting holes are recessed and slotted. A generous opening under the flywheel allows the engine to be cranked over with a starter box.

BRING YOUR OFNA BUGGY UP TO VIOLATOR SPECS

Want to make your 9.5 RTR or Pro kit wider? Well, you'll be able to because OFNA plans to release a conversion kit that will allow you to install the wide Violator suspension on any 9.5 race buggy. The conversion kit will include longer lower suspension arms, upper suspension arms, turnbuckles, steering knuckles and longer front drive shafts and rear dogbones. You'll also be able to order the bigger (135cc) fuel tank to provide a little extra run time.

Hyper 7 PBS owners will be happy to learn that OFNA will soon offer a PCR conversion kit that will allow them to install the low-profile radio tray and horizontally mounted servos on any Hyper 7 buggy. Both of these conversion kits should be available by the time you read this.

SOURCES

OFNA RACING
(949) 586-2910; ofna.com.

TEAM LOSI 4WD REPORT

4WD



THE RUNDOWN ON RACING'S HOTTEST CLASS AND WHERE THE ACTION'S AT

Track...

Intermountain Raceway

Location...

Magna, UT
(Salt Lake City)

Off-Road Race Days...

Wed, Sat

Local 4WD Hotshoe...

Steve Duncan



Q1.

Track...

RC Race Place

Location...

Oklahoma City, OK

Off-Road Race Days...

Sat (Electric)
Sun (Nitro)

Local 4WD Hotshoe...

Keith Pearson



Q2.

Track...

SoCal Raceway

Location...

Huntington Beach, CA

Off-Road Race Days...

Wed, Fri, Sun

Local 4WD Hotshoe...

Brian Kinwald



Q3.

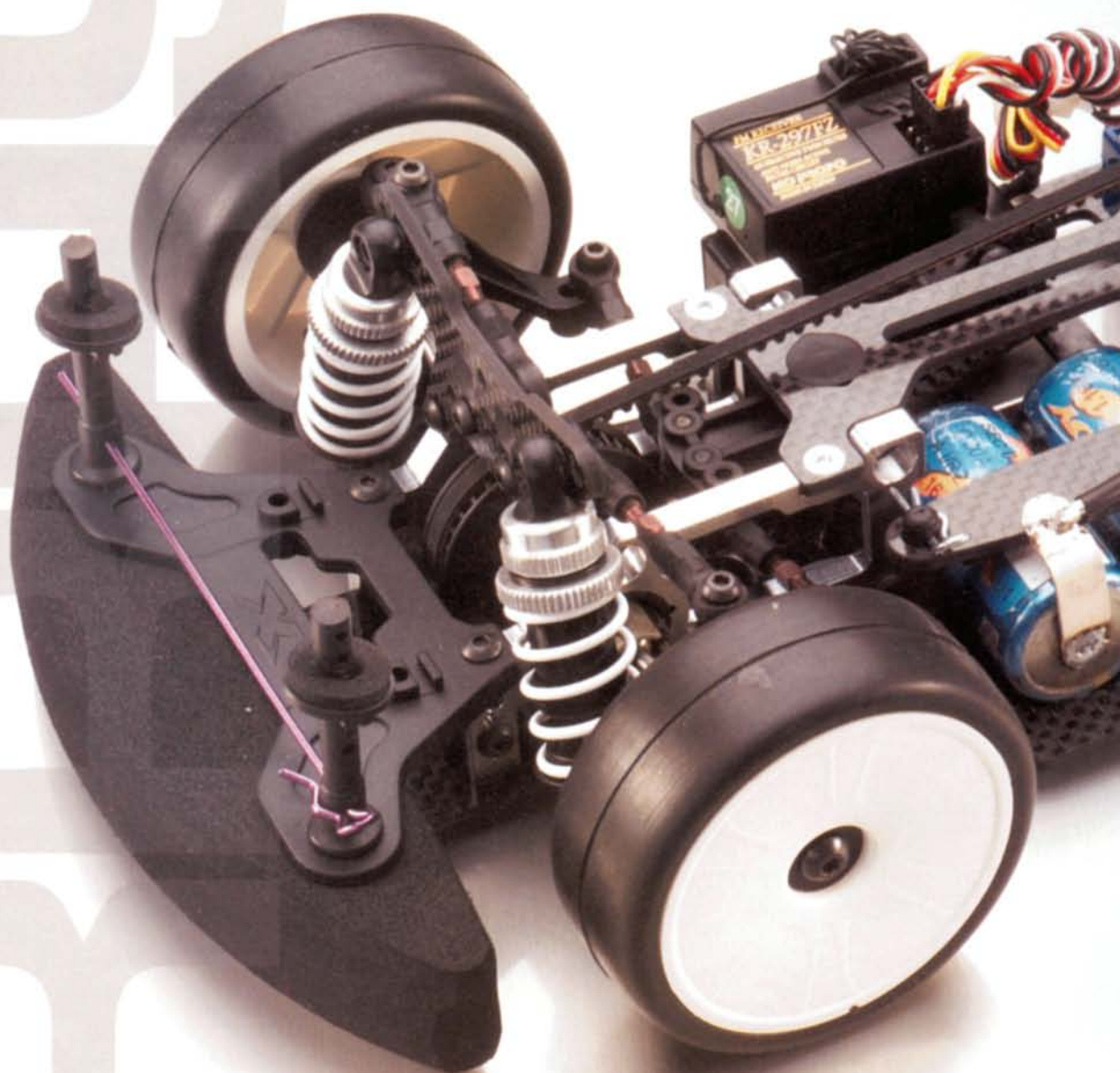
Track Listings...

WWW.RCCARACTION.COM/INFO/TRACK_DIRECTORY_FORM.ASP

firstlook >>>

XRAY T1 MINI

by Matt Higgins



PHOTOS BY DERON NEBLETT



Mighty Mini

Remember the Tamiya M-series and the HPI RS4 Minis? Before today's $\frac{1}{18}$, $\frac{1}{28}$ and smaller cars became popular, the approximately $\frac{1}{12}$ -scale HPI and Tamiya cars were the major players in the "mini" class. The $\frac{1}{12}$ touring class enjoyed a flash of popularity that was spurred by the touring car boom, and is now poised for a comeback, thanks to Yokomo (whose MR4 Mini is tested in this issue) and XRAY, with what will likely be the ultimate $\frac{1}{12}$ tourer: the T1 Mini. From its externally adjustable shocks and differentials to its beautifully finished Duraluminum bulkheads and graphite plate parts, this latest mini-machine is 100-percent T1 at about 80-percent the size.

SPECIFICATIONS

MANUFACTURER XRAY

MODEL T1 Mini

DIMENSIONS

Wheelbase 8.2 to 8.5 in. (208 to 217mm)
Width 6.5 in. (165mm)

WEIGHT

Total, as shown 40 oz. (1,134g)

CHASSIS

Type Flat-plate with upper deck
Material 2mm graphite

DRIVE TRAIN

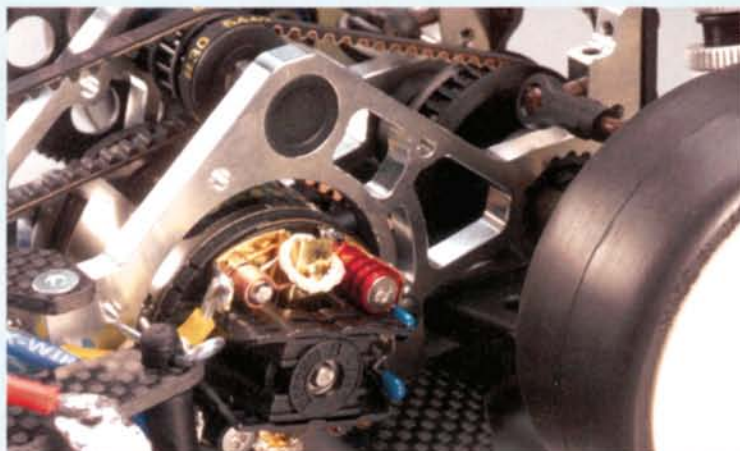
Type Dual-belt 4WD
Primary 93T spur gear
Drive-train ratio 2.125:1
Drive shafts Spring-steel shaft, aluminum stub axle with integrated 12mm drive hex
Differentials Ball differentials with aluminum outdrives and Labyrinth dust covers
Bearings Polyamide-sealed ball bearings

SUSPENSION

Type Lower H-arm with adjustable upper links
Shocks Threaded, plastic-body, externally adjustable damping

WHEELS

Type One-piece, white-plastic dish



The T1 Mini's Duraluminum bulkheads are the same highly polished parts that are included with the Raycer kit. The front and rear diffs are mounted in cam-shaped holders indexed to the bulkheads. Belt tension is adjusted by rotating the cams.



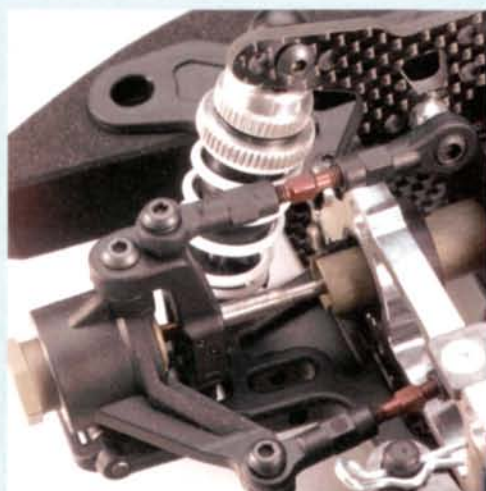
Like the "big" T1, the Mini is full of graphite; the chassis, top deck, battery strap and shock towers are all made of the stuff, and it's flawlessly finished.



The supersmooth center-point steering is slop-free and supported by ball bearings, and it saves a lot of space. You can easily adjust the Ackerman by mounting the turnbuckle steering links in different locations.



XRAY drive axles are not your typical setup. The stub axle and drive hex are one piece of machined aluminum, so they run perfectly true, and they're hard-coated for strength and wear resistance. The universal joint's crosspin is captured by the bearings; this eliminates the possibility that a loose setscrew could cost you a race. The drive shafts are made of Hudy's trademark spring steel, and at the dogbone end, a plastic yoke prevents the steel drive pins from making contact with the aluminum diff outdrives to reduce wear and driveline backlash.



The C-hub front suspension is also lifted from the Raycer, but it's fitted to much shorter suspension arms. The spring-steel turnbuckles are made from special Hudy spring steel.

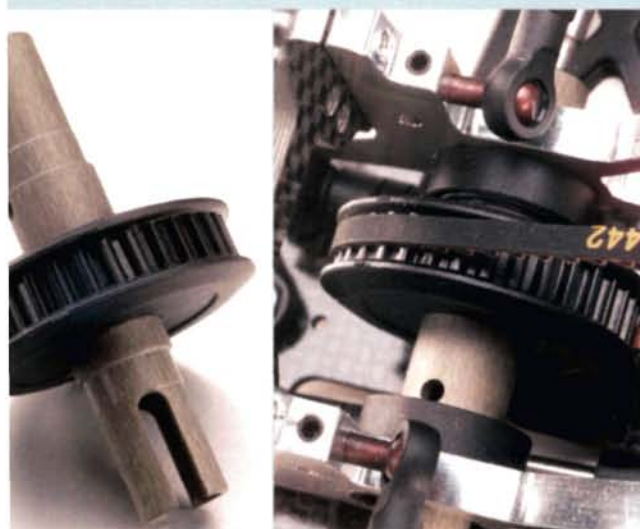
Although we've mistakenly called these "Serpent shocks" in the past, they're 100-percent XRAY. The threaded, plastic bodies have knurled-aluminum preload adjusters and contain split pistons that adjust the shocks' damping force. By extending the shock shaft to its maximum and turning the rod end, the piston halves rotate to open one, two, three, or four holes. Detents and positive stops at each end of the damping spectrum make it easy to get the settings right.

Features

- Graphite chassis, upper deck, shock towers and battery strap
- Polished T6 Duraluminum bulkheads
- C-hub suspension
- Plastic, threaded-body shocks with externally adjustable damping
- Single bellcrank, ball-bearing steering
- Heat-treated, hard-coated, externally adjustable ball diffs
- Heat-treated, hard-coated stub axles with integrated drive hexes
- Hudy high-tensile spring-steel drive shafts and turnbuckles
- "Full size" sedan tires
- Adjustable anti-dive and anti-squat
- Price: \$220 (estimated)



The scaled-down chassis leaves little room for a 6-cell pack, but 4 cells fit just fine with space left for the receiver, servo and motor. If the performances of 4-cell-powered, 1/12-scale pan cars are any indication, the similarly sized T1 Mini should perform well on the smaller pack.



The ball differentials are also externally adjustable and use captured thrust bearings, so they're easier to maintain. The heat-treated, hard-coated-aluminum outdrives are equipped with precision-ground diff rings. The plastic pulleys have innovative dust covers that "seal" the diff balls without conventional contact seals. Instead, concentric rings molded into the covers form a "labyrinth seal" that keeps grit out without the added drag of an O-ring or gasket.



There's a lot going on back here. You can adjust the wheelbase by sliding the arms fore and aft on their hinge pins, and the inboard, camber-link ball stud actually telescopes into the bulkhead to prevent camber changes when the wheelbase is altered. Droop screws set ride height, and you can select either of the two anti-squat settings without disassembling the car.



T1 Mini is slated to arrive in the buff, but XRAY will be offering its own shell. Here, our pre-production unit is dressed in an HPI Civic body and Powers Hot Works wheels. Looks pretty hot, huh?

work that body

The T1 Mini accepts all standard, 12mm hex wheels, but bodies are a different story. XRAY doesn't offer one (yet), so what can you put on this thing? You can still get HPI's RS4 Mini shells in Honda Civic, New Beetle and Rover Mini Cooper styles (that's an HPI Civic shell on our T1 Mini). You could also try Tamiya, as they're still selling M-series cars; M-body styles include BMW (Mini Cooper and Z3), Honda (S2000), Porsche 911 (Carrera and Boxter) and Mercedes (SLK). Yokomo also makes a 1/12-scale Stratus shell that will go right on. XRAY plans to supply a special 1/12-scale touring car body.



The layshaft and spur-gear mounts are machined from a single piece of aluminum, so they spin perfectly true, and the two-belt setup is as friction-free as belt drive gets.

driving the T1 mini

Although our "First Look" prototype looks like a production car, its suspension geometry may change and some of the parts that were lifted from the "big" T1 may be replaced with Mini-specific pieces, so we didn't want to drive the Mini for official testing. But that doesn't mean we didn't want to drive it at all! We took the time to install electronic gear for photos, so we went ahead and took a spin. Forget any fears that giving up two cells will make the Mini slow; with mod power, it's very quick. In fact, it's probably quicker than your reflexes. The Mini's short wheelbase, weight and full-width sedan rubber makes it a razor-sharp handler; if you so much as think "turn," the T1 Mini will start carving. On a tight track with the right setup, it'll probably outrun any 1/10 car. We're happy with the car the way it is, but XRAY is working to make it better. Needless to say, we can't wait to drive the final product.

SOURCES

HPI RACING (949) 753-1099; hpiracing.com.

POWERS HOT WORKS distributed by Schumacher USA (813) 889-9691; racing-cars.com.

TAMIYA AMERICA (800) 826-4922; tamiyausa.com.

XRAY distributed by Serpent USA (305) 639-9665; teamxray.com.

YOKOMO USA (949) 252-8663; yokomousa.com.

RACER NEWS

sponsored by ▶

FUSION
BATTERIES
FUSIONBATTERIES.COM

BY THE RC CAR ACTION TEAM



Degani goes BIG

We were testing cars at KZ Speedway in Sun Valley, CA, when we ran into Kyosho driver and current 1/5-scale world champ Greg Degani. Degani was practicing with an all-new prototype Crono 1/5-scale car for the IFMAR 1/5-scale Worlds that will be held later this year at KZ. Degani looked good driving the big car, and his off-road "pitch it and pin in" driving style was still evident. It's rumored that many other off-road specialists will take the wheels of 1/5-scale cars for the Worlds, so stay tuned, and we'll keep you posted.

SITE SEEING



There are a lot of free games in the Arcade Vault, but "RC Rally" is the one to click first. It takes a while to load, but it's worth it; the cars actually look RC-like, the driving feel is pretty good, and you can drift through the corners. Just be sure to turn down the volume if you're playing at work; the guitar hero soundtrack is loud, and you'll get busted.

BOARD WALK FROM THE RADIOCONTROLZONE .COM BULLETIN BOARD

Cleaning electronics

TRW: Which chemicals can I use to clean my electronics? **BEX:** 70-percent isopropyl rubbing alcohol works; just don't use too much.

HIGHROLLER: Just open the case and blow it out with a can of compressed air (hold upright), or wipe it down with a lint-free cloth and alcohol. You can also apply a piece of Scotch tape over the case; that seems to keep dirt out.

Engine temps

JB THE EVADER: Is 240 to 250 degrees Fahrenheit an acceptable engine operating temperature? Does that sound about right? **BIGMIKE216:** Yep; sounds about right.

OFFROADCRAZY01: If you use 20-percent nitro, it will run hotter and will be hard to tune. Try 30 percent; your engine will run cooler with better performance.

KEYINDEPOT: There is no such thing as a "magic number" when it comes to engine temps! Tune it for the best performance and make sure that a decent amount of smoke comes out of the exhaust pipe.

Carbon-fiber or graphite look?

7PLUTS23: How can I do this?

LEADFOOT: Find tool-mat material or carpet anti-skid mat at a hardware store. Lay it down wherever you want the effect. Don't spray the paint too heavy, and paint the darkest color first. **FASTRACER:** You can use the netting from the back of a sponge. I think that works best.

BE HEARD! LOG ON AT RADIOCONTROLZONE.COM

KYOSHO ROCKS WORLDS!



The high-stakes, ferociously competitive class of world championship 1/5-scale on-road racing has a champion for the 2003 season: Lamberto Collari. Driving his Sirio-powered Kyosho F2003, Collari scored an unprecedented sixth win in this most competitive class of RC racing. The new Kyosho car was dominant; it took the TQ position and three of the top four qualifying spots (the only positions guaranteed to make the final).

Kyosho scored its first world championship in the category, as did Sirio with its innovative new engine and Trinity with its Platinum Blend fuel. GRP tires and Sanwa/Airtronics radio gear rounded out the gear on the world champion's car. Check out the January Issue of RC Car Action for expanded coverage of the event.

Kyosho's Aki Suzuki, GRP's Stephan Gandini, Lamberto Collari, and Sirio's Andrea Rossi celebrate their first IFMAR title.

B4 & T4 DOMINATE ROAR Championships



The Team Associated drivers had a great showing at the ROAR Modified Off-Road Championships held in Dayton, VA. Mark Pavidis drove his new T4 to victory in the Truck Mod class, and Team Associated teammate Jared Tebo grabbed second. In 2WD Modified, Travis Amezcua won two of the three Mains in the triple-A format to take the overall win with his B4, and Billy Easton's B4 was close behind.

GET READY FOR A LOT OF WRENCHING

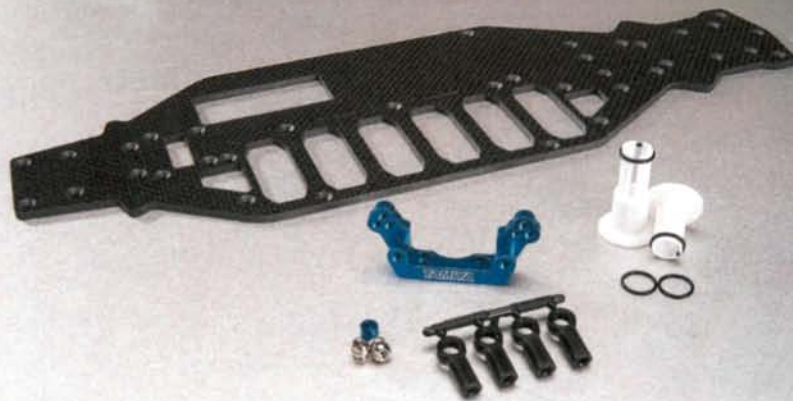
-GREG DEGANI, ON WHAT HE EXPECTS AT THE 1/5 SCALE WORLDS

SPEED SHOP



OFNA RACING Foam air filter

OFNA's new foam-element air filter is now available to fit most 1/10-scale on-road engines, 1/8-scale off-road buggies and all Novarossi engines. The filters come two to a pack. Foam air filters—\$38400; \$10. OFNA Racing (949) 586-2910; ofna.com.



TAMIYA TB Evolution III parts

Tamiya has a few new upgrades for the TB Evo III racer that bring it up to Surikam spec. They include:

REINFORCED DIFF JOINT. Tamiya's new plastic-composite, lightweight outdrives help reduce rotational drive-train mass. According to Tamiya, the composite helps to reduce drive-shaft deflection and prevents wear under high-load conditions. A special ring slides over the outdrive and prevents the outdrive halves from separating when under load.

UPPER ARM ALUMINUM MOUNT SET. This blue-anodized upper arm aluminum mount allows more precise roll-center adjustments. It has three upper link-mounting locations so that you can fine-tune steering response and chassis roll.

HARD MAIN CHASSIS. Tamiya's extra-thick, 3mm chassis adds rigidity to the car, and that allows consistent handling on high-grip or rough surfaces.

Reinforced diff joint—\$3627; \$26.

Upper arm aluminum mount set—\$3628; \$26.

Hard main chassis—\$3629; \$92.

Tamiya America (800) 826-4922; tamiyusa.com.

TEAM ASSOCIATED Factory Team Locking Adhesive

If you're looking for high-quality, medium thread-lock, Team Associated has just what you need. The Factory Team blue-compound thread-lock is great for use on metal-to-metal connections, and it comes in a handy applicator bottle. You can never have enough thread-lock on hand (especially nitro fanatics), and the best part is that it costs only \$4!

Team Associated Factory Team Locking Adhesive—item no. 1596; \$4. Team Associated (714) 850-9342; rc10.com.



CRAZY NUT RACING Nitro TC3 clutch shoes

You've just gotta love the name Crazy Nut Racing! New from CNR is this aluminum 3-shoe clutch-shoe kit. Most racers agree that clutches equipped with aluminum shoes "grab" and launch out of the hole a little harder than a clutch using plastic shoes. CNR's aluminum shoes were drawn on CAD CAM design and then engineered to weigh less than the stock plastic pieces without sacrificing any of the critical "face" area. The shoes are made of high-grade 6061 T6 aluminum and should last the life of your car.

Crazy Nut Racing Nitro TC3 clutch shoes—CNR4003; \$15.

Crazy Nut Racing; crazynutracing.com.

SPEEDMIND Speed stainless-steel ceramic ball bearings

High-end ball bearings differ greatly from the cheap, mass-produced versions we've become accustomed to using over the years. These new stainless-steel ceramic bearings from SpeedMind are made of a black ceramic reinforced material, and they incorporate stainless-steel rings. According to SpeedMind, its bearings are considerably lighter than standard bearings, they last much longer, won't rust (thanks to the stainless steel) and are super smooth to provide maximum rpm. SpeedMind tells us that they work great in clutch- bell applications, too.

Speed stainless-steel ceramic ball bearings—item nos. vary with bearing sizes; \$13 to \$21. SpeedMind (905) 886-1808; speedmind.ca.



UNDER THE HOOD

Josh Cyrul's

Trinity/Team Magic G4 Pro

EQUIPMENT USED

Transmitter: KO Propo Mars

Receiver: KO Propo KR-301F

Steering servo: KO Propo

PS-2174FET

Throttle servo: KO Propo PS-2113FET

Receiver pack: Trinity 650 mAh NiMH

Engine: Sirio .12

Pipe: Sirio

Fuel: Trinity 30% nitro

Tires: TRC tan

Body: Trinity Stratus

Gearing: 20/24T; 51/47T

Clutch: Trinity red shoes

SETUP

	FRONT	REAR
Caster/anti squat	3mm spacer behind arm	—
Camber	-2 left/-1.5 right	-3.5 left/-3 right
Toe-in	2 deg. in	2 deg. in
Ride height	4.5mm	5mm
Width	198mm	198mm
Droop	0	4mm
Steering link	Inner hole on hub	—
Shock oil	70WT	80WT
Shock piston	Standard	Standard
Shock spring	Blue (Reflex)	Stock silver
Shock travel limiters	0	0
Shock tower mount	Outer hole	Outer middle hole
Arm mount	Outer hole	Outer hole
Camber-link mount	—	Lower hole on bulkhead
Hub carrier mount	—	Upper hole on hub carrier
Diff fluid	—	10,000
One-way pulley	Yes	—
Swaybar	Blade-type set at 0 deg.	Blade-type set at 30 deg.

FACTORY OPTIONS

K-Factory

Carbon-fiber parts

- Front bumper support
- Front and rear shock towers
- Upper deck
- Brake support
- Chassis side plates

Aluminum parts

- Servo-mounting kit
- Mid shaft mount
- Radio-tray mounts
- Brake arm
- Front diff mounts

Miscellaneous parts

- Red shoe push-type clutch parts
- Mid shaft mount
- Radio-tray mounts



Josh swears by his Sirio .12. That sure is a big head! Josh attached the muffler to the exhaust port with two muffler retaining springs for extra security. The Sirio dual-chamber tuned pipe is a good match for the engine's broad powerband.

Josh installed a lot of trick graphite stuff on his ride. The bumper mount, upper brace and shock tower are all woven carbon fiber. The shock tower is 4mm thick! You can see the Reflex front blue shock springs and K-Factory low-friction belt in this shot as well.

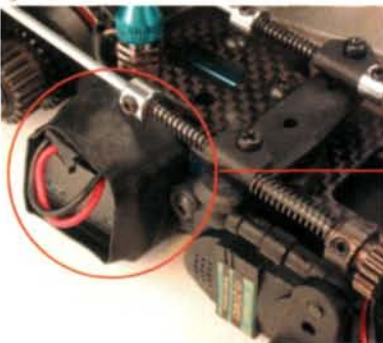


The rear end has been strengthened with a K-Factory aluminum upper arm mount and bulkhead brace. The graphite brake brace is lighter (and much cooler-looking) than the stock molded piece, and the aluminum brake lever is longer and more rigid to give the throttle/brake servo more leverage to clamp on the binders.



FACTORY DRIVER HOT MOD

Josh mounted his KO Propo receiver on the receiver mount with double-sided tape and then wrapped a thick, black rubber band around it. The band holds the receiver securely and allows easy access to the servo and battery connectors. Josh installed a quick-release antenna mount on the upper deck next to the receiver so that the antenna lead doesn't have to travel very far before it enters the antenna tube.



SOURCES

K-FACTORY distributed by Trinity Products Inc.

KO PROPO (310) 532-9355; kopropo.com.

SIRIO distributed by Trinity Products Inc.

TRINITY PRODUCTS INC. (732) 635-1600; teamtrinity.com.

5 QUESTIONS



DRIVER: Josh Cyrul

AGE: 25

LAST BIG WIN: ROAR $\frac{1}{12}$ -Scale Asphalt Nationals

SPONSORS: Trinity, TRC, KO Propo, LRP, Sirio and CEFX

WHEN I'M NOT RACING I LIKE TO: relax with my girlfriend and my family. I like movies, video games, cruising on roller blades and playing hockey.

RADIO CONTROL CAR ACTION:

Way to go on setting the TQ at the ROAR On-Road Fuel Nat, Josh! Was this the first time that you raced the new G4 at a big event?

JOSH CYRUL: Thanks; this years Nats was the first "major" event where I had run the car, but the Speedline GP in Las Vegas was the first time I drove the car. From there, I ran several Midwest Series races along with the Great Lakes Challenge. I had a few races to learn the car and get used to it before the ROAR Nats.

RCCA: So what are your thoughts about the new car? Do you like it? In your opinion, what are some of the car's best attributes?

JC: The new car is awesome! I think it's a much more refined vehicle than the Reflex. There are so many things that I like, and in my personal opinion, it's the best nitro TC on the market. Starting with the laydown steering and throttle servos, trick steering system, 4mm low diff and 2-speed assembly, smaller "Centax"-style clutch system, new suspension geometry ... the list is very long.

RCCA: I heard that it got pretty hot during the event, with track temperatures over 150 degrees. Did the hot track temperatures play a role in your car setup? Did you have any difficulties chasing down a setup?

JC: The hot temps did make me compensate on my setup a little. I actually had a few different setups that I liked, but the biggest difference was tire wear. I had one setup that was very fast but definitely harder on the tires. When I TQ'd the event, I had actually gone back to my "final" setup that was about .1 to .2 seconds per lap slower, but it was much easier on tire wear and easier for me to drive.

RCCA: You obviously did very well during qualifying. What prevented you from winning the main event?

JC: In the final, I had worked up a 2 second lead when I ran out of fuel on the lap that I was planning to be come into the pits for fuel. It has happened to me at a few races this year, but I think it's because of the G4's only flaw: the fuel tank is 69 to 70cc. We run an extra fuel line and a fuel filter to get it up to 74ccs, and that is fine for qualifying when you can top the tank off to the maximum. But at a pit stop in the final, you are only filling the 69 to 70cc tank. The fuel doesn't cycle through the extra line and filter fast enough to get those precious extra ccs into each tank. Running out of fuel in a race is a disaster, and the time is hard to make up.

RCCA: You've been pretty successful this year at the races, Josh. How about a recap of this year's racing escapades? By the way, are you getting ready for the Cleveland Indoor Championships?

JC: I finished second at the $\frac{1}{12}$ ROAR Nationals and at the Snowbirds (in the 6-cell Oval class). I also finished second at last year's IFMAR World Champs (both the 200mm and 235mm classes). I won the Mod TC and Mod $\frac{1}{12}$ classes at the Snowbirds, finished first at the ROAR $\frac{1}{12}$ Asphalt Nats and won a lot of smaller gas races all summer. Cleveland has always been a struggle for me. In the past, I've wanted to win it so badly that I made dumb mistakes. Nearly every year, I have been fast enough to win, but something always happens. It's racing and that's why I keep going back. Anyway, I've won every class there is to win at Cleveland: $\frac{1}{12}$ Stock, $\frac{1}{12}$ Mod, TC Stock and TC Mod; no one else can claim that record, so I can't complain about luck at Cleveland! I haven't won the Master's class there, but in another 10 years, those guys better look out!



T4 TERMINATES ALL

Hot Rod Hobbies in Saugus, CA, is one of the West Coast's premier off-road tracks, thanks to its super-consistent, hard-packed clay surface and nats-caliber layout. So, it's no surprise that the annual Hot Rod Hobbies Off-Road Shootout has grown into one of SoCal's biggest non-sanctioned events, with top-driver attendance and world-class racing. Now in its sixth year, the latest Shootout was the biggest yet, with nearly 400 drivers lined up for a shot at some hardware (and a chance to pose with the trophy girls). The race also marked the debut of Associated's T4 in organized competition, so A-Team pride was on the line. Here's how it all went down.

5TH ANNUAL

HOT ROD HOBBIES

SPONSORED BY NOVAK RACING ELECTRONICS, REEDY MODIFIEDS, SIDEWINDER, TEAM LOSI, TEAM ASSOCIATED, AIRTRONICS, BONZI MOTORSPORTS, BD PERFORMANCE PARTS, BOCA BEARING, COBRA, DACE ME





Four Team Associated drivers who made the A-main with their new Team Associated T4s. The drivers got the trucks just days before the Shootout.



OFF-ROAD SHOOTOUT

FUTABA, HITEC, KIMBROUGH PRODUCTS, MIP, N-STYLE, PARMA, TEAM ORION, UPGRADE AND RC CAR ACTION

by Jason Sams





A-main action

EXPERT GAS TRUCK

Team Trinity/Losi drivers Adam Drake and Ryan Cavalieri battled for the entire 45-minute A-main, swapping turns for the lead. With just minutes left on the clock to settle the finishing order, both Drake and Cavalieri came in for one last pit stop. Matt Francis was Drake's pitman, and Cavalieri's father Louis pitted for him. Drake pitted first, so Francis grabbed his truck and gave his good buddy a very fast splash of gas. It looked really good for Drake, but, unfortunately, his tires started fading, and that caused his car's rear to get loose in the corners. Cavalieri had about



1½-second lead going into his final pit stop. His father refueled the truck impressively fast just before Drake went by to regain the lead. The two raced side by side to the finish line; Cavalieri was first, and Drake finished second. Third place went to Team Associated's Lloyd Dasonville.

EXPERT MODIFIED 2WD BUGGY

Drake and Cavalieri were at it again. Cavalieri won the first Main, and Drake was second. In the second Main, Drake beat his younger teammate Cavalieri by just 2 seconds, and in the final Main, it was up to the two drivers to settle the score. Cavalieri got out front and battled with Brian Kinwald, while the Drake sat mid-pack and battled with the rest of the pro drivers. When it was over, Cavalieri won the third Main just ¾ second ahead of Kinwald. Drake finished sixth in the third race and secured second overall. Team Associated's Jared Tebo finished third overall with his B4 after his third- and fourth-place finishes were tallied together.

EXPERT MODIFIED 4WD

In the first Main, Team Trinity/Losi drivers Kinwald and Cavalieri set the pace and pulled away from the rest of the pack to sort out the winner. Cavalieri narrowly won the first race because Kinwald was unable to finish his final lap, but he managed to hang onto second place. In the second Main, Kinwald was the victor, and Cavalieri finished way down the list in eighth place. Three drivers could have won the overall in the final race: Todd Hodge needed to win and for Kinwald to finish outside the top three; Kinwald and Cavalieri just needed to win. The final race was an unexpected driving clinic from Team Losi/Team Orion driver Brian Dunbar, who put in the fastest laps of the entire weekend in the third and final Main. Dunbar's

Triple-XT ran well all weekend, but luck just wasn't on his side. He easily won the final race with the weekend's only 16-lap effort. Kinwald held on to second, which earned him the overall victory. Cavalieri finished third, and that was good enough for second overall. Todd Hodge finished fourth in the final leg and secured third place overall.

EXPERT MODIFIED TRUCK

The most anticipated races of the weekend were the three Mains for the Expert Modified Truck class. Everyone wanted to see how the new Team Associated T4 would run against the proven Team Losi Triple-XT. Team Associated driver Billy Easton secured the TQ honors for the new T4 during qualifying. Four T4 trucks were in the big dance, which is pretty impressive when you consider that the Team Associated drivers received their trucks only a few days before the Shootout. The first Main was exciting, as Team Associated driver Travis Amezcua piloted his T4 up to the front from a start way down the grid in the middle of the pack. TQ Easton had early trouble, and that allowed Team Trinity/Losi's Cavalieri and Team Associated's Jared Tebo to finish in second and third. In the second race, Easton jumped out in front from the get-go. Team Trinity/Losi driver Brian "Dirtinator" Kinwald followed Easton like a heat-seeking missile, and despite his impressive efforts to make Easton crack under pressure, Easton hung on to take the win with a cushy 2-second margin. At the buzzer to start the final race, Easton nailed the throttle and grabbed the holeshot. He never checked his rear bumper—he had packed his bags and checked out. Easton won the final Main by more than 5 seconds, and he was declared the champion of the weekend. Jared Tebo finished third in the final Main and won second place overall. Third place overall went to Brian Kinwald.



WRAP-UP

The 6th Annual Hot Rod Hobbies Off-Road Shootout was a huge success. Every year, track owner "Hot" Rod spends good coin on some hot trophy girls, and this year's ladies were probably the best! The large trophies were first-rate, and the organized staff put on a great race that is supported every year by the industry with some very cool prizes for the raffle drawings. Food and restaurants are nearby, and there are racing classes for everyone, so we expect to see you at Hot Rod Hobbies in Saugus, CA, at next year's Shootout.



NEW IN THE PITS

BD Precision Accessories aluminum and titanium parts

We saw some new products from the guys at BD Precision Accessories. It's a new company that makes excellent hop-ups for Team Associated and Team Losi's popular gas trucks. BD specializes in titanium and aluminum braces that beef up the trucks and make them virtually indestructible. Pictured is a rear titanium shock-tower brace for a Team Losi Triple-XNT. The brace prevents the shock tower from breaking on hard impacts. You can find BD Parts at bdparts.net, or call (661) 296-2645.

Franchise custom decals

Brothers Jeff and Greg Monise have gigantic Franchise stickers on their cars; I had to find out why. Franchise is a vinyl graphics company that produces graphics kits for dirt bikes and makes custom RC decals to order. Franchise sponsors the two brothers, so they get all kinds of cool, free stickers. Interested in some first-rate decals for your RC car, dirt bike, or business? Check out franchise.net, or call them at (909) 518-3909.



Above: Jeremy Felles poses with his trophies, if you catch our drift. No one doubts the truth of the statement he scrawled on his chest, either.

Right: We spied this truck in the pits with a fuel-line reservoir for extra shock oil. The setup is said to provide progressive damping. This trick was hot in the old-school days.



Kid stuff

We met a couple of 11-year-old racers at the Shootout who were putting the spank down on their competition. Tanner Stumpf from Canyon Country, CA, finished an impressive second in the Sportsman Gas Truck A-main. This kid has been racing for only a little more than a year, and he beat out 40 drivers at the Shootout.

Steven Hartson from Garden Grove, CA, TQ'd and won the Sportsman Stock Buggy A-main and then finished second in the Sportsman Stock Truck class with his brand-new T4. Young Steven has raced for less than 2 years, and he's already smoking guys twice his age. If a scout from Team Losi or Team Associated is reading this, be sure to find these guys. They'll rub fenders with Travis Amezcua and Matt Francis before you know it.





WINNERS

	DRIVER	CHASSIS	MOTOR	BATTERY	ESC	TIRES (F/R)	RADIO
Sportsman Stock Car							
1	Steven Hartson (TQ)	Associated B4	Handout	Reedy 3000	LRP v7.1	Losi spec	Airtronics M8
2	David Burnell	Losi XXX	Handout	Peak 3000	Novak	Losi spec	Airtronics M8
3	Michael McDonnell	Losi XXX KE	Handout	Pro-Match	Novak GT-7	Losi spec	Airtronics M8
4	Billy Fonnegra	Losi XXX KE	Handout	Trinity	Novak	Losi spec	Airtronics M8
5	Jason Altzman	Losi XXX	Handout	Bones GP3300	Novak GT-7	Losi spec	Airtronics M8

Sportsman Stock Truck							
1	Chet Gardner	Losi XXX-T	Handout	Reedy 3000	LRP v7.1	Losi spec	Airtronics M8
2	Steven Hartson	Associated T3	Handout	Reedy 3000	LRP v7.1	Losi spec	Airtronics M8
3	Kevin Smith	Losi XXX-T MF	Handout	Pro-Match	Novak	Losi spec	Airtronics M8
4	David Burnell (TQ)	Losi XXX-T	Handout	Peak 3000	Novak	Losi spec	Airtronics M8
5	Bill Smith	Losi XXX-T	Handout	Trinity 3000	Novak GT-7	Losi spec	Airtronics M8

Sportsman Gas Truck							
1	Nathan Lavery (TQ)	Losi XXX-NT DE	Trinity/Picco	Losi Drake	Trinity	Losi spec	Airtronics M8
2	Tanner Stumpf	Losi XXX-NT MF	Mugen MT-12	CVEC	Sidewinder	Losi spec	JR XS3
3	Brent Meier	Mugen MST-1	Mugen MT-12	Rex	Mugen	Losi spec	Airtronics M8
4	Robert Lam	Mugen MST-1	Mugen MT-12	Associated	Mugen	Losi spec	Futaba 3PK
5	Tim Hanson	Associated FT GT	Mugen MT-12	Associated	Sidewinder	Losi spec	Airtronics M8

Expert Stock Car							
1	Mike Truhe (TQ)	Losi XXX KE	Orion Core	Orion 3000	Novak GT-7	Losi Taper (S)/Losi BK Bar	Airtronics M8
2	Josh Numan	Losi XXX KE	Orion Core	Orion GP3300	Novak GT-7	Losi Taper (S)/Losi Taper	Airtronics M8
3	Ryan Dawson	Losi XXX KE	Orion Core	Orion	LRP	Losi (G)/Losi BK Bar	Airtronics M8
4	Jeremy Felles	Losi XXX	Bonzi	Sub-C	Novak Cyclone	Panther Lynx/Panther Proto	Airtronics M8
5	Alex Torrico	Losi XXX	Trinity MH2	Trinity GP3300	Novak GT-7	Losi 4WD Taper/Losi Taper	Airtronics M8

Expert Stock Truck							
1	Jeremy Felles	Losi XXX-T	Bonzi	Sub-C	Novak Cyclone	Losi /Panther	Futaba 3PS
2	Aaron Waldron (TQ)	Losi XXX-T MF	Trinity P2K2	Trinity GP3300	Novak	Panther Stinger/Panther Switch	Airtronics M8
3	Doug Scripture	Losi XXX-T MF	Peak	Peak	LRP	Losi 8-rib (S)/Losi	Airtronics M8
4	Alex Torrico	Losi XXX-T	Trinity MH2	Trinity GP3300	Novak GT-7	Losi Taper/Losi BK Bar	Airtronics M8
5	Ronnie Gardner	Losi XXX-T	Peak	Orion HV	Novak Cyclone	Losi Taper (S)/Losi Taper	Airtronics M8

Expert Modified Car							
1	Ryan Cavalleri (TQ)	Losi XXX	Trinity D5 12x1	Trinity 3000	Novak GT-7	Losi	Airtronics M8
2	Adam Drake	Losi XXX KE	Trinity D5 13x1	Trinity GP3300	Novak GT-7	Losi 4WD Taper/Losi BK Bar	Airtronics M8
3	Jared Tebo	Associated B4	Reedy KR 11x2	Reedy GP3300	LRP	Pro-Line	Airtronics M8
4	Dave Montgomery	Losi XXX KE	Orion Core 11x2	Orion VMax	LRP v7.1	Losi PS (S)/Losi BK Bar	Airtronics M8
5	Mike Truhe	Losi XXX KE	Orion Core 13x2	Orion 3000HV	Novak GT-7	Losi 4WD Taper/Losi BK Bar	Airtronics M8

Expert Modified Truck							
1	Billy Easton (TQ)	Associated T4	Reedy KR 10x2	Reedy 3300	LRP	Losi Taper	Airtronics M8
2	Jared Tebo	Associated T4	Reedy KR 10x2	Reedy 3300	LRP	N/A	Airtronics M8
3	Brian Kinwald	Losi XXX-T MF	Trinity D5 10x1	Trinity GP3300	Novak GT-7	Losi Taper (S)	Airtronics M8
4	Travis Amezcua	Associated T4	Reedy KR 10x2	Reedy 3300	LRP	Losi	Airtronics M8
5	Ryan Cavalleri	Losi XXX-T	Trinity D5 10x1	Trinity 3300	Novak GT-7	Losi	Airtronics M8

4WD Modified							
1	Brian Kinwald	Losi XXX-4	Trinity D5 10x2	Trinity GP3300	Novak GT-7	Losi Taper	Airtronics M8
2	Ryan Cavalleri (TQ)	Losi XXX-4	Trinity D5 10x1	Trinity 3300	Novak GT-7	Losi	Airtronics M8
3	Todd Hodge	Losi XXX-4	Trinity D5 10x1	Trinity GP3300	Novak GT-7	Losi Bikh. (S)/Losi BK Bar	Airtronics M8
4	Brian Dunbar	Losi XXX-4	Orion Core 10x1	Orion GP3300	LRP Quantum	Losi Bikh. (S)/Losi Taper	Airtronics M8
5	Jukka Steenari	Losi XXX-4	Orion Core 9x2	Orion GP3300	Novak GT-7	Losi Bikh. (S)/Losi BK Bar	Airtronics M8

Expert Gas Truck							
1	Ryan Cavalleri	Losi XXX-NT	Trinity/Sirio	Losi Drake	Trinity	Losi	Airtronics M8
2	Adam Drake (TQ)	Losi XXX-NT DE	Trinity/Novarossi	Losi Drake	Trinity Platinum	Losi Taper	Airtronics M8
3	Lloyd Dassonville	Associated FT GT	Mugen	Associated	Sidewinder	Pro-Line	Airtronics M8
4	Jared Tebo	Associated FT GT	O'Donnell	O'Donnell	O'Donnell	N/A	Airtronics M8
5	Phillip Atondo	Losi XXX-NT DE	Orion Wasp	Losi Drake	Orion BD	Losi	Airtronics M8

F I F T H A N N U A L

Hitec Parking Lot Challenge

ON-ROAD
EXTRAVAGANZA!

SPONSORED BY: HITEC, HOBBY PEOPLE & HTM-RACING

by George M. Gonzalez

Every year, Hitec hosts the Hitec/Hobby People Parking Lot Challenge, which is a one-day event that's held in the main parking lot of Hitec's beautiful facility in Poway, CA. It is so popular that all 150 entries were filled months before the event. Nitro and electric on-road racers of every age and skill level participated in this challenge, and many pro drivers competed in the Factory Exhibition class. The Hobby People "Blue Crew" set up the modular track system and operated the timing computers, and they also kept the races going at an incredibly fast pace. Sponsors donated tons of cool prizes, so everyone who signed up went home a winner.



The Hitec Parking Lot Challenge attracts racers of all ages and skill levels; the drivers' stand was constantly packed.





Justin Lew was one of the lucky winners who took home a Hitec CRX radio system. Now his lap times are sure to improve.



The factory drivers take over the stand. Can you name all these drivers? If you can, you're a devoted RC fan!



A full day of racing

There were 12 racing classes to choose from. Most were divided into Rookie, Sportsman and Expert divisions to ensure that there was a racing class for every skill level. Electric touring-car racers competed in Stock, 19-turn Spec or Modified, and the nitro touring classes were divided into Sportsman and Expert driver classes. There was even an Open Micro class for HPI's hot 1/18-scale Micro RS4.

The Hitec/Hobby People Parking Lot Challenge was a great success. The weather was awesome, the racing was fun and exciting, and everyone who attended went home with a cool prize. The top three winners in each class scored cool car-stand trophies and "race bucks" that can be redeemed at any Hobby People store. Hobby People's "Blue Crew" did a fantastic job of managing the event. I still can't get over how they fit 22 heats with two qualifiers and main events into just one day. Be sure to attend the '04 Hitec/Hobby People Parking Lot Challenge; you'll be glad that you did. ■

Hitec's Mike Mayberry passes out the swag. Every registered racer was given a raffle ticket. So much stuff was raffled off that every racer walked away with something. Hobby People and XTM Racing gave away car kits, speed controls, battery packs, engines and much more. Hitec donated several top-of-the-line CRX radio systems and tons of servos, receivers, T-shirts and baseball caps.



The winners' circle

CLASS

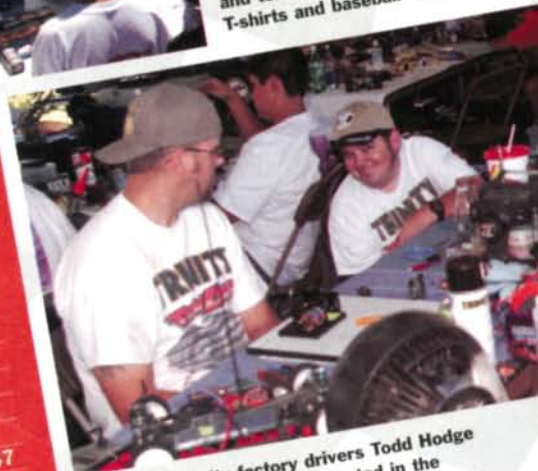
On-Road Rookie
Sport 4WD
Intermediate Stock
Expert Stock
Micro Open
Sportsman Modified
Expert Modified
Factory Modified
Nitro Sportsman
Nitro Expert

DRIVER

Enrique Armenezariz
Mike Sved
Kevin Smith
Albert Guardado
Mike Rydwell
Travis Lawrence
Jose Molina
Brian Kinwald
Eric Cunamay
Don Vinkemulder

LAPS/TIME

13/4:07.47
15/4:11.98
16/4:11.87
20/5:02.15
18/5:02.73
21/5:15.11
21/5:14.76
22/5:09.24
54/15:08.47
52/15:11.38



Team Losi/Trinity factory drivers Todd Hodge (left) and Brian Kinwald competed in the Factory class. These guys put on an amazing display of driving talent for all the spectators and rookie drivers.

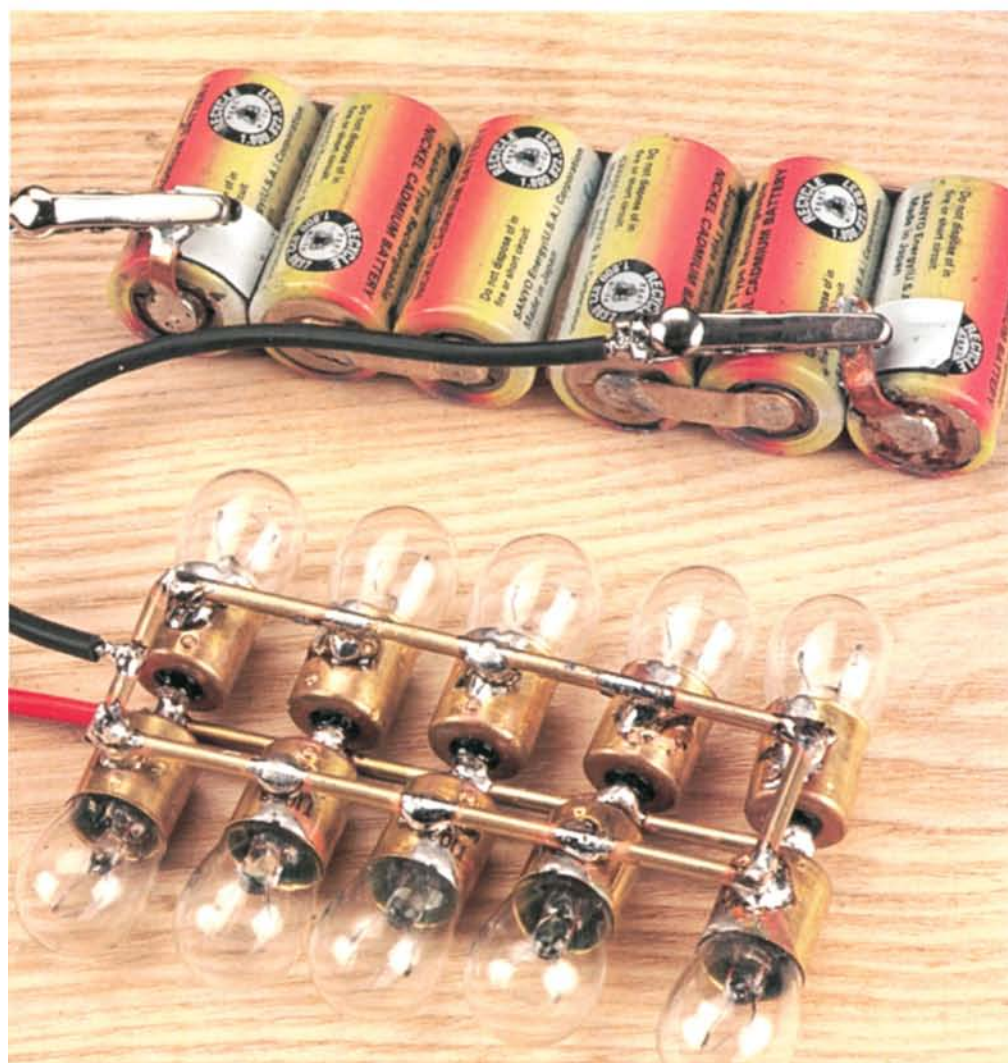
howto build a battery discharger

No drain, no gain by Jason Sams

If you want to be serious about getting the most from your electric power system, you need a high-amp battery discharger. It's the tool you'll use to drain your packs before recharging them, to train them to run at race pace and to monitor their capacity. Sounds like a high-tech piece of gear, right? Nah; it's just a bunch of light bulbs! With a little patience, it's easy to solder a discharger of your own. Here's how.

you'll need

- 10 no. 1157 automotive taillight bulbs
- 60/40 rosin-core solder
- Soldering flux
- 3 feet of $\frac{1}{8}$ -inch brass tube
- Alligator-clips or connector to match your packs
- Steel wool or 100-grit sandpaper
- 1 foot of 14-gauge wire
- 40W (or higher) soldering iron
- "Third hand" tool



How many bulbs?

A no. 1157 taillight bulb draws about 2 amps, so you need 10 bulbs to build a 20A discharger. Why 20 amps? A motor in a competition car that is geared to run for 5 minutes draws about 20 amps, and it's best to consistently discharge your packs at an amp rate similar to what they'll see in action.

Serious modified racers often use a 15-bulb discharger to pull 30 amps, but this is more than what most of us need. When in doubt, go with fewer bulbs; there isn't any point in putting extra strain on the cells. Save the abuse for the A-main!

1 TIN THE BULBS. "Tinning" is the application of a light coat of solder on a part to prepare it for assembly. To tin the terminals on the bottom of each bulb, dab them with flux and melt a little solder onto them.

Use just enough solder to lightly coat the terminals; more isn't better.



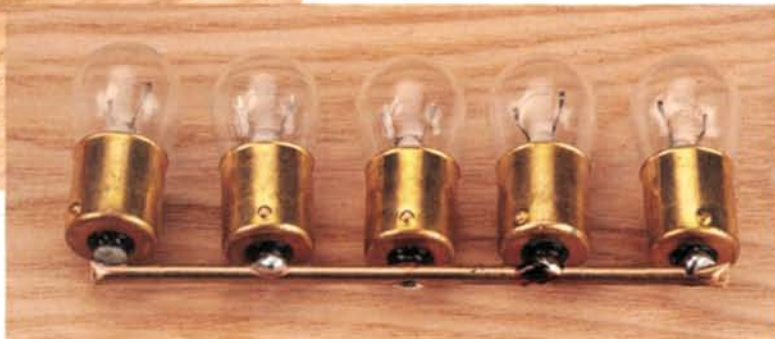
2 CUT AND TIN THE BRASS TUBE. For this project, you need four pieces of tube. Cut two 5-inch lengths, and two 1½-inch pieces. A tube cutter is the best tool for the job, but a pair of diagonal cutters will also do the trick. Next, tin the ends of each tube and at 1-inch intervals on the longer pieces. Use your sandpaper to scuff the brass for a strong joint.



The tube is used as a structure to support the bulbs and as a conductor to complete the bulb circuit. Tinning the tube now will make assembly easier later.

3 SOLDER THE BULBS TO THE TUBE. Begin by soldering the base of a bulb to the end of one of the 5-inch tubes. The terminal on the bottom of the bulb should contact the tube. To make the job easier, tape the bulb to the bench top and use a "third hand" to hold the tube. Repeat this step until you have soldered five bulbs onto one of the longer sections of tubes. Now solder five more bulbs to the other side of the tube.

When soldering, don't hold the tube with your bare hand; the brass conducts heat very well, and you don't want to burn yourself. Note that the bulbs don't touch each other; this helps prevent breakage.



TOP TIPS

WHEN THE BULBS DIM, DISCONNECT THE PACK.

If you let the pack dump until the bulbs go out, that doesn't mean the discharger is "off"; it just means that the pack doesn't have enough power to make the bulbs glow and that the pack is being over-discharged. As soon as you see the bulbs change from being fully bright to a dull glow, the pack has been discharged enough.

USE THE DISCHARGER TO RATE YOUR PACKS.

Because the discharger draws a steady 20 amps, it's the perfect tool for testing battery capacity. Fully charge your packs, and then put each one on the discharger. Use a stopwatch to time how long it takes each pack to dump.

DON'T DISCHARGE NIMH PACKS.

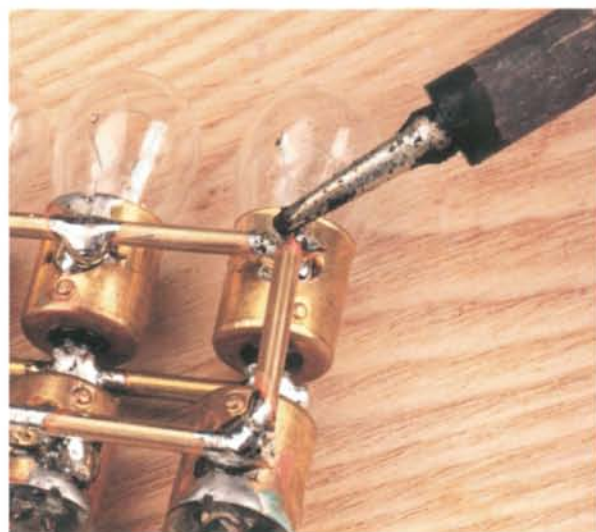
Of course, you can discharge NIMH batteries; they get discharged in the car, after all. But you don't have to dump them after each run. If you do completely dump a NIMH pack, it's best to recharge it at least partially and store it with some voltage in it. For more on Ni-Cd and NIMH battery care, check out the "How To: Battery Golden Rules" article in this year's July issue.



4 JOIN THE SIDES OF THE BULBS. Scuff, flux and tin the sides of the bulb sockets, then place the pre-tinned tube across the base of the bulbs and solder it to the sides of the bulb sockets. The bulbs are now joined in parallel: all the positive terminals are joined to each other, and the bulbs' sockets (which are "positive") are joined.

Joining the sides of the bulb sockets with a brass tube completes the circuit for the upper five-bulb assembly.

5 SOLDER THE BULB SIDE RAILS TOGETHER. Remember the two 1½-inch tubes cut in Step 2? Use them now to join the bulb side rails. You only need to join them at one end to complete the circuit, but the discharger will be sturdier if you link both ends.



6

ADD THE CONNECTOR OR ALLIGATOR CLIPS. Strip and tin two 6-inch pieces of 12- or 14-gauge wire and install the connector of your choice or alligator clips to the end of the wires. If you go with clips, don't just crimp them to the wire; be sure to solder the connection. To complete the discharger, solder one wire to the center rails and the other to the bridge between the side rails. Don't worry about polarity; although we've referred to the bulbs as having "positive" terminals and "negative" sides, the bulbs will work fine no matter how they're hooked up. That's it; your discharger is complete.

Alligator clips are great for hard-wiring, but if you use plugs, install them instead.

Discharger SAFETY

- > **REMEMBER, THOSE BULBS ARE MADE OF GLASS.** Don't put the discharger in your pants pocket and be careful not to drop it; the bulbs are fragile.
- > **WARNING: HOT BULBS!** The brightly glowing filaments make the bulbs very hot, so be careful.
- > **WATCH OUT FOR HOT ALLIGATOR CLIPS.** If you use alligator clips to connect your discharger, and then dump a pack that has a lot of juice left in it, the clips will be very hot because of their electrical resistance.

No time to build?

If you'd rather just buy a discharger that's ready to go out of the box, then this is the unit to buy. This 20A discharger from Deans costs about \$40. That is a lot more than the \$15 it would take to build one, but the Deans machine has an aluminum bulb guard and it doubles as a car stand. And, you don't have to solder anything! If you want a Deans discharger but still want to save a few bucks, for about \$25, you can also buy one as a kit.



SOURCES

DEANS (714)-828-6494; wsdeans.com.

What is it about 4WD buggies that makes you want to push them harder, jump them farther and dive them deeper into corners? It isn't hard to figure out; with all of its wheels hooked up, your 4-wheeler can stay on the gas longer and plow into corners farther than any 2-wheeler. Unfortunately, this means you're gonna hit stuff that much harder, and that means more damage. With this in mind, and knowing there's a 99-percent chance that anyone who runs a 4-wheeler has a Losi Triple-X4, we figured out a few beef-up tips for Losi's one-belt wonder. If you never hit anything, there are better ways to spend your time (such as filling out sponsorship resumes). For the rest of us, these tips will make our Losi 4WD machines just about crash-proof.

A close-up, low-angle shot of a Losi Triple-X4 4WD buggy racing on a dirt track. The car is blue and silver with yellow accents and is shown from the side, angled towards the right. The front suspension and wheels are prominent. The background is a blurred dirt track.

howto bulletproof

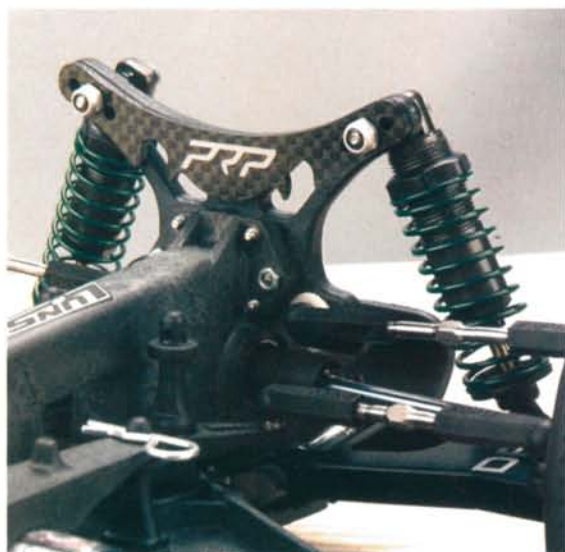
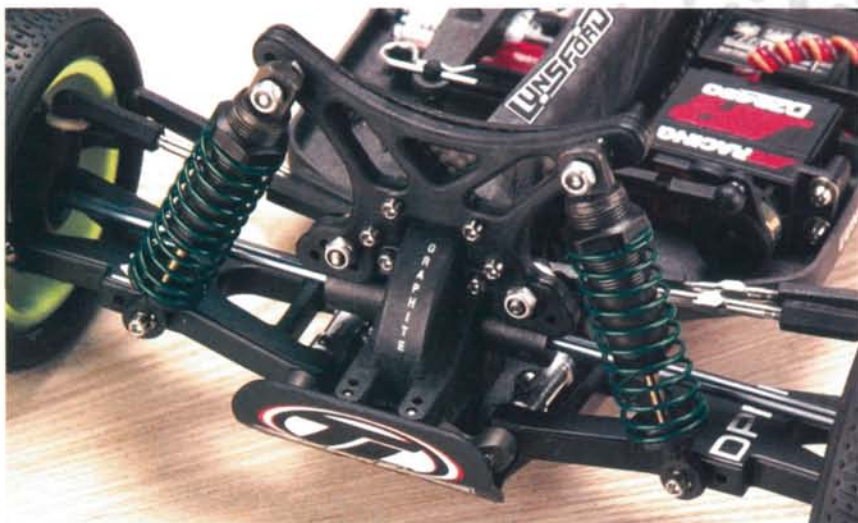
by Lito Reyes

Make your Losi last!

SUSPENSION BEEF-UPS

STRONGER SUSPENSION ARMS

Dennis Mong at DPM Racing manufactures machined-Delrin suspension arms that are much more crash-worthy than the stock parts. The Delrin arms are CAD-designed and CNC-machined with extra material at all of the stress points. Two additional lower shock-mounting locations let you further dial in your buggy. They weigh a bit more than the stock arms, but they're much stronger, and that makes up for the small weight increase.



TOUGHER TOWERS

A disadvantage of buggies is their exposed shock towers. If your car ends, the shock towers usually take the brunt of the abuse. Fortunately, Team PRP manufactures 2mm graphite braces that markedly strengthen the stock front and rear molded shock towers. The rear brace includes aluminum spacers that are mounted solidly against the molded rear tower. They are perfect for Triple-X4 owners who don't have Losi's upgraded chassis with molded-in bulkhead bracing. Stainless-steel mounting hardware is also included.

TITANIUM TURNBUCKLES, HINGE PINS AND SCREWS

The first upgrade you should make to any off-road buggy or truck is a complete set of titanium turnbuckles and hinge pins. Titanium is stronger and lighter than steel, and that makes it a welcome material on any racecar. Lunsford Racing offers a complete titanium turnbuckle and hinge-pin set (item no. 4056).

While we were at it, we also installed Lunsford's new 6056 titanium screw set and a set of Quick Tune shock mounts.

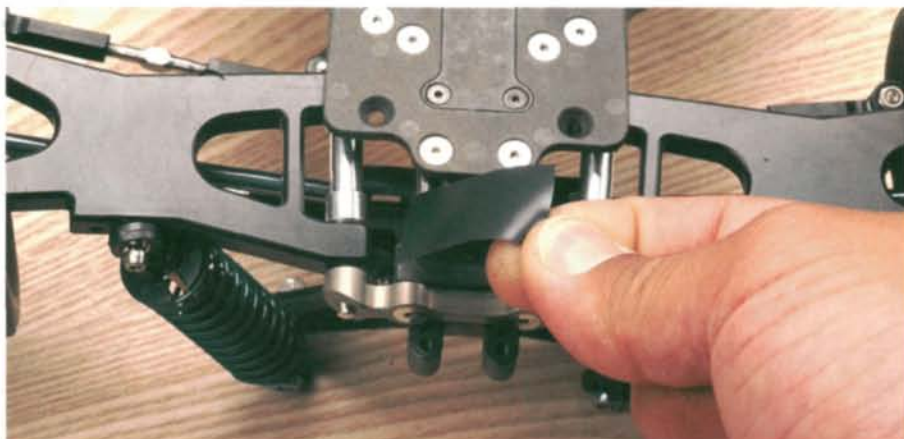


the team losi XXX-4

HOW TO BULLETPROOF THE TEAM LOSI XXX-4

DIRT-PROOF DRIVE TRAIN

Losi's single-belt drive train is pretty well sealed, but dirt can still work its way in through the seams where the front and rear bumper covers meet the lower chassis. To counter that, just place a piece of electrical tape over the diff opening before you install the bumpers. Also, use few pieces of tape around the edges of the Lexan spur-gear cover. This makes it even more difficult for unwanted dirt to get into the system.



CHASSIS TRICKS

TAP HIGH-USE SCREW LOCATIONS

Losi kindly includes a tapping screw that helps cut threads into its strong Stiffezel and graphite parts, but nothing compares to a proper tap kit when you have to make strong, clean threads. This is especially important for screw holes where screws are often loosened and tightened, such as the lower shock points on an A-arm. The well-tapped hole is less likely to be cross-threaded or stripped. Just \$20 will buy you a good tap handle and all the metric and standard taps you'll ever need.



BEEFIER BALL STUDS

Camber-link ball studs are some of the most stressed parts on an off-road car. If one fails because of breakage, not only will it cost you the race, but you might also have to replace the molded piece the ball stud is mounted on. Most pro drivers replace steel ball studs with stronger titanium units. If you don't have the cash to buy titanium ball studs, you can strengthen the steel ones (and your shock towers) by using a longer ball stud and then placing a 4-40 locknut on the other end. This spreads the load area placed on the stud across the front and rear of the tower. Your shock towers will thank you.



STRONGER INNER PIVOT MOUNTS

There's little doubt that graphite parts are lighter and generally stronger than their standard, molded counterparts, but you can drastically increase the durability of the suspension system by using Losi's aluminum inner pivot mounts. These hard-anodized, machined-aluminum blocks are available in different angles to suit your track. Combine them with titanium hinge pins and graphite or Delrin arms, and you may never break a suspension piece again.



We put our Triple-X4 buggies through lots of abuse to test these tricks and hop-ups, and they came away with only scratched bumpers and bashed-up wings. Add beefier titanium hardware and stronger aftermarket components, and you'll be able to take your Triple-X4 to the A-main with confidence. Remember: the little things can make the difference between a car that finishes a race and one that gets a "DNF." We know which one you want to have.

SOURCES

DPM RACING (512) 468-8727; dpmracing.com.

LUNSFORD RACING (541) 928-0587; lunsfordracing.com.

TEAM PRP home.attbl.com/~teamprp.

A New Era in Mad Force mods

It's easy to figure out why the Kyosho Mad Force is one of my favorite monsters. Its reliable big-block engine provides power to spare for on-demand wheelies, and thanks to its 3-speed transmission, this truck nudges 45mph when at full tilt. Although my experience with Kyosho's big rig has made it one of my favorites, it has also revealed the truck's weaknesses, but that's why

there's an aftermarket! With a few parts from Fioroni, Golden Horizons, Kyosho and a bunch of stuff from New Era, my Mad Force is now a tougher, better performing monster.



parts list

FIORONI

- Ferodo brake disc—item no. OT-DF01, \$11.99.

GOLDEN HORIZONS

- 1/8 tuned pipe for Savage (single stinger)—08108, \$34.99.

KYOSHO

- Hardened-steel ring gear—IF106, \$35.99.
- Hardened-steel pinion gear—IF21, \$16.99.

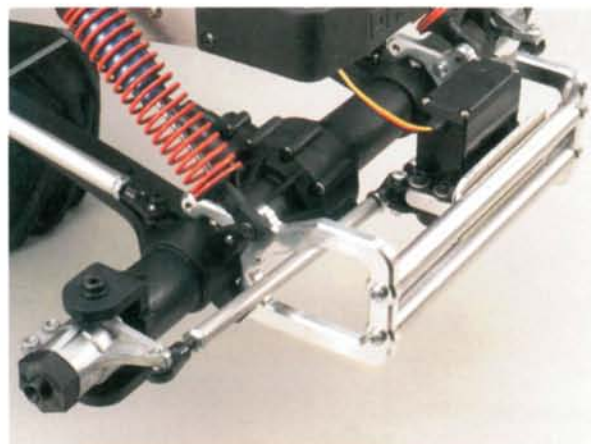
NEW ERA

- Rear toe links—KMF339, \$12.95.
- Wheelie bar with rubber wheels—KMF343, \$39.90.
- Steering-servo adapter—KMF300V2, \$68.95.
- Super-duty center skidplate—KMF334, \$19.95.
- Suspension support rods—KMF209SD, \$28.50.

A NEW ERA IN STEERING PRECISION

I could never figure out why the steering servo is mounted so high in the chassis on the Mad Force. The high servo placement raises the truck's center of gravity, and the linkages and bellcranks that operate the steering hubs contribute unwanted play to the system, which reduces steering responsiveness. New Era's servo mount/bumper eliminates the originally high-mounted servo by relocating it to the front axle. This not only lowers the truck's center of gravity, but it also greatly simplifies

the steering system and protects the front axle. A heavy-duty servo-saver and 1/4-inch aluminum steering rods are included with the kit.



Thanks to New Era, the steering servo can be mounted on the axle. With this mod, the servo is connected directly to the front hubs rather than relying on a complex bellcrank arrangement.

NO MORE STUBBED TOE (RODS)

The Mad Force's stock, 2mm steel rear toe rods bend too easily, so I replaced them with New Era parts. The 1/4-inch aluminum-bar stock links are far stronger, and they are just about bend-proof. Like New Era's other aluminum parts, these will also take a nice polish if you'd like to give your truck a custom look.



Check out the New Era link—beef!

SUSPENSION SUPPORT

More New Era stuff here. Over time, the Mad Force's stock "suspension arms" become overly flexible, and that allows the axles to travel so far that the dogbone drive shafts fall out. To combat this, New Era's suspension support rods are attached alongside the stock arms. The rigid links prevent over-extension but still allow the stock arms to act as torsion springs. The New Era rods do limit axle articulation a little, but it sure beats losing dogbones!

I also tweaked the suspension by using a lighter shock fluid; I found that 20WT works the best. The axles can move around a little more, and that reduces bouncing.

The suspension-arm support rods permit the torsional flex that's necessary for axle articulation but prevent the over-travel that allows the dogbones to pop out.



WHEELIE-PROOF DIFFERENTIALS

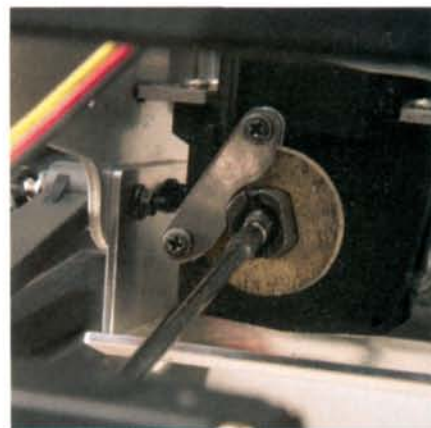
The Mad Force's differentials arrive assembled and packed with grease at the factory, but since they're Inferno MP-7.5 diffs, they can be filled with silicone fluid. By switching to silicone, the diffs won't "unload" as easily, and that greatly helps to control the Mad Force when it's in wheelie mode. I cleaned out the grease and then filled the rear diff with 5,000WT fluid and the front diff with 3,000WT. While I had the front diff out, I replaced the cast ring and pinion gears with a set of hardened units from Kyosho. The rear diff already has hardened gears, so I didn't touch them.



Unlike grease, which is displaced by gear teeth that leave only a thin film, silicone fluid flows back into the diff gears to provide consistent resistance.

NO MO' ENDO

The Mad Force is known for its touchy brakes; grab them even lightly, and the truck flips over its front axle as if it were a bicycle with a broomstick jammed into its spokes. It helps to exchange the fuel tubing that Kyosho supplies to act as a brake spring for an actual spring. In addition to that, you can replace the steel brake rotor with a fiber rotor like this one from Fioroni. The metal calipers aren't as grabby on the fiber rotor, and that allows better control.

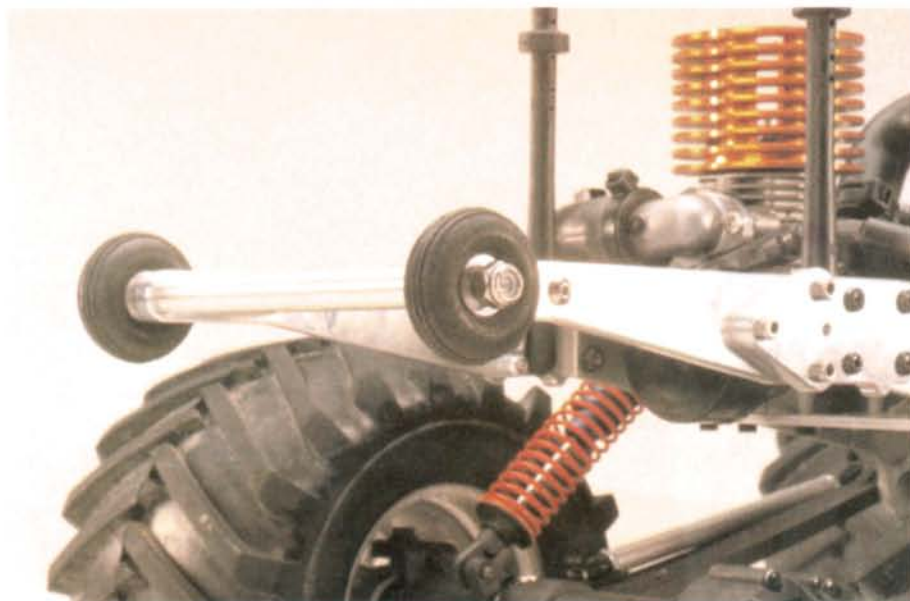


If you add a fiber brake rotor (like this one from Fioroni) and replace the stock fuel-tubing "spring" with a real spring, your Mad Force will spend less time on its roof.

WHEELIE BAR

The stock plastic wheelie bar does a perfectly good job of preventing the truck from flipping onto its lid, but it's about as stylish as a pair of Popsicle sticks with coat buttons for wheels. More important, it's nonadjustable, so if you don't want your wheelies to be sky-high, you're stuck. New Era's aluminum wheelie bar is a direct replacement for the stocker, and it can be set to hold the front end low for drag-style launches, raised high for exhibition wheel stands, or set in an "in between" position.

The New Era wheelie bar is a great hop-up. It's very solid, and the rubber wheels soften the blow when the truck pulls wheelies. You can also set the angle of the bar to adjust the height of the wheelie.



SKID ROW

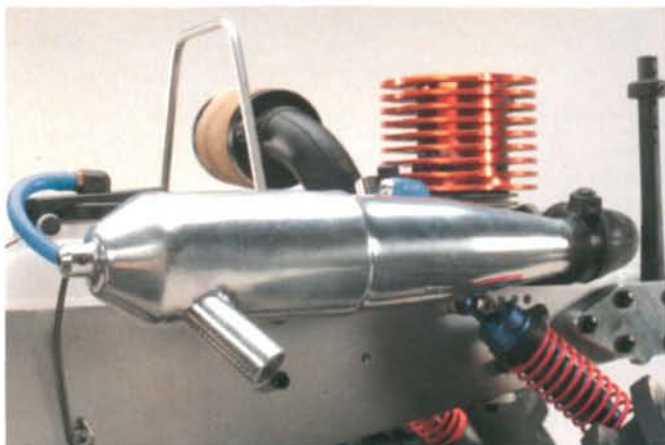
The center tranny isn't protected and could easily be damaged if the truck high-centers on something that could fit between the chassis plates. An aluminum skidplate from New Era ends this worry, and you can bolt it onto the bottom of the chassis using the existing mounting holes.



You can ding it, but nothing's going to get through this skidplate. Your tranny is safe.

PIPE DREAM

The Mad Force's cast tuned pipe is restrictive and looks like something you'd find under a sink, so out it went. I replaced it with a polished-aluminum pipe from Golden Horizons that looks much racier. Since it now breathes better, the GS21R engine makes maximum power.



More shine, more power, less flow restriction, less weight; with the Golden Horizons polished-aluminum pipe you win some, and you lose some—in a good way!

DRIVING THE "MADDER" FORCE

Even before I squeezed the trigger on my modified Mad Force, I could tell that it was going to rip; the snarl that came from the Golden Horizons' pipe was a good hint. The free-breathing pipe allowed the GS21R to spool up much more quickly, and the Mad Force wheeled even more aggressively than before.

The truck didn't seem to rebound any less on the New Era wheelie bar than it did on the stocker, but it was much easier to control, thanks to the silicone-filled rear differential. Instead of unloading into whichever tire lifted, the diff "pos'd," and that kept the Mad Force tracking straight with its front end held high. Letting off the throttle brought the wheels back down so I could steer, and I instantly felt the greater precision provided by the bumper-mounted servo setup. The Mad Force tracked straight with my hand off the wheel and carved turns with as much precision as its massive tires allowed. It was much easier to stay in sync with the oscillation of the chassis as it rolled in and out of corners.

Cornering wasn't as flat as it had been with the lighter damping, but the bump and jump absorption was greatly improved. Instead of counting on the tires to do a lot of the work, the suspension got the job done. The truck soaked up big hits better and rebounded much less.

The softer setup also provided more braking grip, but the fiber-brake mod gave me much more control. A full squeeze could still flip the truck, but unlike the old on/off switch feel, I could actually modulate the brakes and feel the lockup coming on. After a few tanks' worth of handling, jumping, brake testing and just bashing around, it occurred to me that I never had to take a break to look for ejected drive shafts; those New Era suspension supports really work!

TRICK TRUCK STUFF



TEAM AUTOHAUS

Aluminum arms for Thunder Tiger EK-4

Few trucks can smash into stuff as hard as the Thunder Tiger EK-4 can, so heavy-duty options for that truck are always welcome. Team Autohaus offers a way to increase strength with an aluminum infusion in the form of billet suspension arms. The CNC-carved parts are direct replacements for the stock plastic arms and are available in red, blue and purple. They also fit the EB-4 racing buggy.

EK-4 lower arms (F/R)—TA0056/TA0055, \$61.99/\$74.99.

SOURCES

FIORONI distributed by General Silicones Co. USA (626) 338-3815; generalsilicones.com.

GOLDEN HORIZONS ENTERPRISES CO. LTD. (604) 331-2526; ghohobby.com.

KYOSHO distributed by Great Planes Model Distributors (217) 398-6300; (800) 682-8948; kyosho.com.

NEW ERA MODELS (603) 888-4453; neweramodels.com.

TEAM AUTOHAUS (941) 255-9116; teamautohaus.com.

TALK TRUCK!

Send your "4x4" questions and comments to Kevin Hetmanski, kevinh@airage.com.

12 prerace prep tips from the pro's

If you're a nitro enthusiast and have wondered how some of the top racers in RC prepare, tune and maintain their nitro equipment, you're in luck. In this month's "Piston Power," three of the very best racers in RC—Mark Pavidis, Jason Ashton and Mike Dumas—take the time to tell me all about their nitro-specific preparation, maintenance and tuning routines. I'm confident that after reading what these guys have to say, you'll be better prepared to tune and maintain your nitro engines like never before. Let's get to it!



jason ashton



mark pavidis



mike dumas



RC Car Action: Let's first discuss how you prepare your vehicle's clutch. What steps do you take to ensure that your clutch will be ready to perform its best?

Mark Pavidis, 2003 1/8 ROAR Off-Road National Champion (Kyosho MP-7.5): I always trim just the tip of my Kanai II's clutch shoes to shorten the contact area. If the spring hangs over the shoe, I cut that back. If it's brand-new, I clean the clutch bell with motor spray and then scuff it up with 300-grit sandpaper so it will grab. If I have time between qualifiers, I check to make sure that the shoes aren't glazed over; if they are, I use Scotch-Brite to scuff the glaze off. Another thing I look out for is the clutch-bell bearing that's closest to the clutch. I spray it out with motor cleaner and leave it alone. Any oil in there will contaminate the bell, and that can cause the clutch to slip.

Jason Ashton, 2003 1/8 ROAR Off-Road Nationals second place (Mugen MBX-5): With the MBX-5's aluminum shoes, I make sure that they lie flat against the flywheel by using a file to round off the back edges of the shoes. That's really all I do—no drilling, cutting, or spraying cleaners. After the qualifiers, I check the clutch to make sure that nothing is binding and that there aren't any burrs on the aluminum shoes; basically, I leave it alone. I'm pretty low maintenance.

Mike Dumas, 2003 Team Trinity Factory Team Driver (Trinity G4 touring car): I run the Centax clutch from Team Magic on the G4; that clutch is a box-stock part. In my opinion, it's better than 2 or 3-shoe clutches. I do some minor modifications to the clutch before it sees the track. I make sure that the shoe is free on the pins and other parts, and I also remove burrs and mold flanges before assembly.

When I put the clutch bell over the shoe, I make sure that the bell doesn't drag on the shoe itself; the clutch bell should spin freely when assembled. I like to use a long-lasting grease (or black grease) on the thrust bearing and make sure that it's well lubed for racing and before long Mains.



Team Epic driver Mike Dumas uses a Centax clutch like this in his Team Magic G4.

RCCA: How about engine tuning? Do you have any specific tips for race-tuning versus practice-tuning? Do you tune to a certain temperature or by the sound and "feel" of the engine? What are some tips for the club racer who travels to an out-of-town race?

Mark Pavidis: I like my practice-tuning to be as close to my race-tuning as possible so the engine and car feel the same during both practice and racing. I tune by using a combo of temperature and how the engine sounds and performs. If I go to an event that isn't near my home and the weather is different, I find a parking lot the night before qualifying and use it to get my mixtures close. I always tune the top end first and then adjust the bottom-end mixture. If I get the

needles close in the parking lot the night before, it is usually really close by the time I get to the track the next day.

Jason Ashton: Lots of racers like to run the top end really lean and the bottom end really rich, but I'm different. I run the bottom end leaner and the top end richer because that makes the engine's powerband feel a lot closer together. My engine is set up to feel like less of an on-off switch and feels more controllable to me. For warmups, I drive the car as hard as I can for two laps in an almost out-of-control, full-throttle run to get the engine as hot as I can. I use the Mugen/REX P5 in my MBX-5, and before a long A-main, I richen the high-speed and low-speed needles approximately "one hour" from where they were during qualifiers just to make sure that the engine will be cool and won't overheat. I want my engine pretty rich at the beginning and really good at the end—when it counts.

I also like my engines stock because they seem easier to tune and are more consistent. If a club racer can learn anything from a guy like me, it's that he can buy an off-the-shelf engine and still race with the top guys; I'm proof of that.

Mike Dumas: For break-ins and local club racing, I tune to the engine temp because excessive heat is very bad for engines. I run at about 260 to 280 degrees Fahrenheit at club events. At regional, national and world events, I tune the engine to how it runs on that particular track, and I check the temp every once in a while to make sure that it isn't running at a ridiculous temp. I would never run an engine over 320 degrees; if your engine runs hotter than that, you should richen the mixture a little to cool it off. When the weather changes, it's best to only adjust the top end or change the plugs to "hot" or "cold."

RCCA: Do you have any pre-race rituals? When do you fire up your engine before a race? Do you run a new plug before a race? Are there any general maintenance rituals that you go through before putting your car on the track?

Mark Pavidis: I like to start my buggy engine at least 5 minutes before the qualifier or race to get heat into it; by the 3-minute warmup, it is up to running temp.



The pro's don't take any chances; they regularly replace the glow plugs in their engines.



Kyosho MP-7.5 factory pilot Mark Pavidis recommends using a combination of temperature, sound and performance to tune for racing.

Also, I install a new glow plug before the practice round so I can get my engine settings during practice with the new glow plug. I never change plugs and then go directly into a race; it's important to see whether the new plug will change the fuel mixture, even when it's the same model of plug as the one I just replaced.

Jason Ashton: Generally, I won't even fire my engine up before an A-main until the warmup starts. It's funny, but I think it's a nervous thing for some guys who warm their engines up way before.

I just want to know that my engine will run, and then I'm fine. Lots of guys fire their engines up 10 times before an A-main because they're nervous. I put a new plug in before the practice round of an A-main just to make sure that it's fresh and will last, and then I get my settings dialed in.

Mike Dumas: Before I go to a big race, I want to have my clutch, engine or engines broken in and close to adjustment. It makes it a lot easier once I'm at the race to have everything prepared so I only have to focus on tuning my car. If I have doubts on engine tuning, I start it before the race and make sure that everything is OK. Usually, I just warm the engine up in practice. I install a new plug after I break in a new engine and sometimes before a main event. If the Main will last for more than 10 minutes, I also install a new plug; it's just another precaution against one other thing that can go wrong.

RCCA: After a big race weekend and a long Main, your engine and clutch have been through a lot. How do you make sure that your

equipment is still in working order and good enough to take to the next race?

Mark Pavidis: After a long race, I disassemble my car and check the engine and clutch for wear. For the engine, I rotate the flywheel and check for compression as well as any play in the conrod.

Jason Ashton: I change the entire clutch after every major race, and sometimes, I change the springs every other heat unless they feel good. The clutch-bell bearings are usually toast after a 60-minute Main, so I replace them. Engine-wise, you may be surprised to hear that this year, I went through only three engines; as much as I race, that's incredible. I have one practice engine and one race engine, and both are bone stock. I switch carbs between the two engines because once you find a carb you like, it makes every engine after that run really well.

Mike Dumas: If the engine runs properly, I don't fix what doesn't need to be fixed. I check the compression on the engine by spinning the flywheel in my hand. If it has compression like when it was new, it's still good. On the other hand, if the compression is poor and the flywheel spins easily, then the engine is shot. I replace the piston and sleeve, or the entire engine, whenever compression has gone. If I have been running an engine for a long time and have to start chasing the tuning after a while, it's most likely time to get a new engine.

RCCA: Thanks to all three of you for your time and your invaluable engine and clutch secrets. Best of luck with your races in the future! ■

Airbrushing 101 Part Deux



Now you have an airbrush, so it's time to have some fun and to see what you can do. Last month, I set out to help you purchase and, hopefully, understand how airbrushes work; now I'll explain how you can whip up some fades, streaks, lines and spots so you can create killer-looking bodies. To start, I'll outline some of an airbrush's basic uses and functions and then highlight some of the spraying tricks you'll want to learn. Once you become comfortable with these techniques, virtually any paint scheme is possible. I told you this would be fun!

AIRBRUSHING

Before you ever put paint to plastic, there are some general concepts you should keep in mind. These include proper air pressure, paint type, trigger use, painting distance and paint-coat thickness.

PROPER AIR PRESSURE.

This should range between 25 and 60psi; the most often used pressure setting is about 35 to 40psi. Higher air pressure (40psi+) results in greater atomization and works well if you want to create a very fine fade, or when you use thicker paints. If a paint "spits" when sprayed, either raise your air pressure or thin the paint. High air pressure is not the ticket for small-detail spraying. Anytime you paint small-detail sections such as lines less than 1/8 inch wide, a low air pressure (less than 35psi) is preferred.



Most airbrushing will be done with the regulator set at an air pressure output of between 35 and 40psi. This regulator is properly adjusted for some general airbrushing.

PAINT TYPE. The two basic types of RC hobby paint are water based and lacquer based, and within those two groups are paints of slightly varying thicknesses. In general, thinner paints are ideal for detail spraying, and thicker paints are better for broader applications that require large, solid coverage. That said, most RC hobby paints are suitable for spraying directly as they come out of the bottle. If you want a thinner paint consistency, be sure to use an appropriate thinning agent. Water-based paints such as Parma Faskolor can be thinned with water. Although



The Parma Faskolor (left) is water based, and the Pactra paint shown here is lacquer based. Both paint types spray equally well but require different cleanup procedures.

rarely necessary, lacquer-based paints can be thinned with paint thinner.

The difference in performance between water-based and mineral-based paints is negligible. All commonly used RC hobby paints will work for any effect. In my experience, however, lacquer-based paints tend to spray more easily and atomize better, resulting in finer detail and better fade gradients, whereas water-based paints are easier to work with when changing consistency and color and are safer and cleaner to use. Water-based paints are easily cleaned up with warm, soapy water, and lacquer-based paints are cleaned up with lacquer thinner.

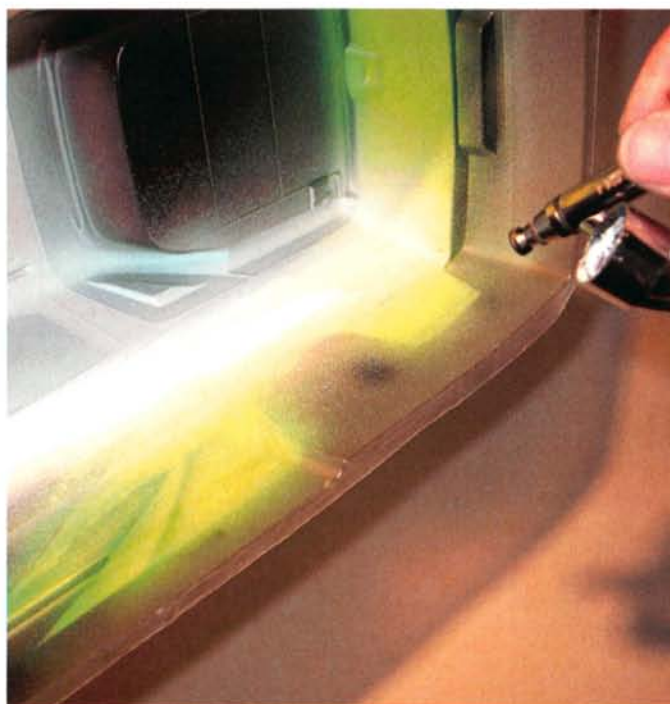
TRIGGER USE. To use a dual-action airbrush, you must depress the trigger to release air and pull the trigger back to release paint. Combining these two motions with airbrush movement and changing the painting angle and distance will result in any manner of sprayed effect. If this is your first time using an airbrush, the operation sequence used should be: air on (fully depressed trigger), and then gently pull the trigger back to release the amount of paint you want. The farther you pull back the trigger, the more paint you release. It is fairly easy to get used to this motion, and you will soon see how easy it is to alter the thickness of paint applied and the width of a spray pattern.

PAINTING DISTANCE

When filling in large areas with paint, the airbrush is typically held 8 to 12 inches away from the surface. To paint a smaller area more efficiently, move the airbrush closer, make the spray pattern smaller, and release less paint. The smallest effects are created with the airbrush nearly touching the surface.



When painting small details, position your airbrush close to the surface. Make sure you have good control of your paint flow when working up close. Too much paint, and you'll end up with puddles.



When you paint large areas, hold the airbrush 8 inches away and even up to 12 inches away from the body. By pulling the brush away from the surface, you'll be able to cover large areas faster.

PAINT-COAT THICKNESS

It usually takes two to three coats (fully dried) to paint an area, depending on the type of paint you use. It is always better to spray thinner rather than thicker coats.

Special effects

Why be satisfied with simply being able to efficiently spray neat areas of paint and create simple fades? An airbrush can do so much more. Of the many effects possible, I recommend becoming proficient at the following techniques:

SIMPLE FADES. This is simply fading one color to the next. Work on controlling the amount of paint you release in painting broad areas to create a gentle fade that will form a smooth gradient when subsequent layers of paint are added.



SOLID LINES. Try to create solid and consistent lines of paint from about 1/2 to 3/4 inch wide. This isn't always possible and depends on the paint, air

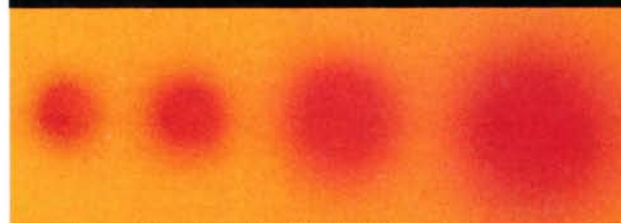


pressure and airbrush you use, but experiment to see how fine a line you can make.

FADED LINES. Begin to paint a solid line, and then smoothly turn off the paint while still moving the airbrush to form a faded tip to the line. This skill is most valuable for creating streak patterns. A version of this is to create a double faded line—one that has both a faded beginning and end. To do this, move your airbrush (with the air on) in the path of a line and then gradually release paint, and then turn it off again.



DOTS. These are very simple to do: just hold the airbrush still and slowly release paint until a circle is created to the size you desire. Both the amount of paint and the distance from a surface will change the size of a dot.



BearAIR EXPRESS

**Airbrushes
For Less!**

FREE
Tip & Nozzle on 1st
year Anniversary

PEAK AIRBRUSH

Item # 100293

From base coats to
fine detail, with The Peak
you'll airbrush like a pro!

\$69

AZTEK

	RETAIL	BEARAIR
9174 Kit	\$59.95	\$39.95
4308 Kit	99.95	59.95
4709 Kit	169.95	89.95

IWATA

(Lacquer Friendly)

Revolution HP-BCR	\$100	\$59
Revolution HP-CR	100	59
HP-C Deluxe	210	119

PAASCHE

H Set (SINGLE ACTION)	\$77	\$42
VL Set	110	59

BADGER

	RETAIL	BEARAIR
Sotar 20/20	\$395	\$129

RICHPEN

	RETAIL	BEARAIR
013G (SINGLE ACTION)	\$157	\$57
GP-1	328	164

We Stock Parts For Every Airbrush We Sell!

COMPRESSORS

Iwata

	RETAIL	BEARAIR
Sprint Jet	\$259	\$159
Smart Jet	299	199

W/AUTO SHUT-OFF

All compressors listed above include moisture traps,
air regulators and are ultra quiet!

All Pactra Acrylic colors in stock...
ship in 24 hours, or shipping is FREE!

pactra

AS LOW AS \$199
PER 1oz. BOTTLE!

We stock AutoAir and
House of Kolor paint kits!



FREE 120 Page
Buying
Guide and
Catalog

1-800-BearAir 1-800-232-7247
Speak to a Friendly Airbrush Expert Today

ORDERS SHIP IN 24 HOURS!

www.bearair.com

World's Most Complete Source for Airbrushing Equipment

bodyshop

PRO TIP: PRACTICE MAKES PERFECT

The best way to get a feel for what an airbrush can do is just to put in any color of paint and try it out on a piece of scrap cardboard. Experiment with releasing and closing off the paint supply to create faded streaks and dots, and try to release the paint consistently to see how fine a solid line you can make. If you are serious about becoming a better painter, you can do airbrush drills to work on your control skills. These might include repeatedly creating a series of dots, lines and faded streaks in various sizes.



To become comfortable with your airbrush, try practicing some of these painted effects. Grab a scrap piece of Lexan or some cardboard, and paint away. You'll hone your skills and have fun.

new in the shop

ALCLAD II Lacquer Chrome for Lexan

It seems pretty odd to mention a new spray-can product as part of an article on airbrushing, but this Alclad II paint is cool, and you'll want to check it out. The easy-to-use can holds 3 fluid ounces of paint that works just like the popular airbrush chrome paint.

Now the can "connoisseurs" can create and spray on the cool, chrome paint jobs that were once only possible with an airbrush.

Alclad II
Lacquer
Chrome for
Lexan—
ALC5114;
\$5.99.
Alclad II
(813) 643-
1232;
alclad.com.



CONCLUSION

You should now be well on your way of getting into airbrush action. Experiment and master these basic techniques, and then incorporate and develop other effects. With a little practice and patience, you can paint anything you imagine. Good luck, and have fun.



With a little practice,
it won't be long before you
create cool shells like this.

SOURCES

PACTRA INC. distributed by Testors Corp. (815) 962-6654; testors.com.

PARMA/PSE (440) 237-8650; parmapse.com.

DETAILING DILEMMA? Send your Body Shop questions and comments to Josh Theile josh@airage.com

Pro-Line Dirt Hawg 40 Series tires

THE DIRT HAWG TREAD ISN'T A NEW DESIGN for Pro-Line; it first appeared more than 10 years ago for 1/10-scale trucks running on 2.2-inch wheels, and it was a huge success. The race-proven tread has been updated for the 40 Series line. The tires feature an incredible 6-inch diameter and a low-profile sidewall that provide improved performance. The S-shape lugs have been altered to include a ridge that runs around each lug. Pro-Line claims that this outer ridge allows each lug to flex for improved traction. The tires also come with white foam inserts.

I installed the Dirt Hawgs on a Traxxas T-Maxx for some all-terrain bashing, and they easily ripped through off-road obstacles; the T-Maxx left a roost of dirt as its wake. I also ran the tires on a paved parking lot, which slightly wore down the soft M2 compound after extended running. Off-road terrain suited the tires best, but they still hooked up well on the pavement; the tires will wear more quickly there than on the dirt. —Mike Martin

Pro-Line Dirt Hawg 40 Series—item no. 1112-00; \$29/pair.

Pro-Line (909) 849-9781; pro-lineracing.com.



SuperKnife utility knife

THE SUPERKNIFE IS A FOLDING UTILITY KNIFE that's perfect for many RC-cutting tasks. Solidly constructed of aluminum and stainless steel, the cool-looking SuperKnife is light and compact, and when it's folded, it measures only 3.5 inches. A belt clip mounted to the handle allows easy toting, and the knife is nicely anodized in any one of five colors: silver, black, blue, red and purple.

When the blade becomes worn, it is easy to remove thanks to the included "2-n-1" service tool and single-screw mounting design. Use the tool to remove the small hex-head screw, and the blade will slide right out so that you can flip it over or install a new one. You won't have any hassle finding replacement blades; the SuperKnife accepts all standard utility blades—including contractor-grade. The included "2-n-1" tool can also tighten the fastener that allows the knife to pivot open; my SuperKnife needed to be tightened after extensive use.

The included razor-sharp blade came in handy when I cut fuel tubing and zip-ties, removed parts from parts trees and scored Lexan when I

trimmed out bodies. Its compact size made it easy to wield, and when closed, the blade is protected within the handle, so you won't have to worry about losing a cap or ruining the blade as it bangs around in your pit box.

SuperKnife also offers a ballistic nylon case that fits on your belt and holds one SuperKnife, the "2-n-1" service tool and two replacement blades. —Paul Onorato

SuperKnife—901 (silver), 902 (black), 903 (blue), 904 (red), 905 (purple); \$25.

Original carrying case—912; \$10.

Original replacement blades—918; \$5/pack of 6.

SuperKnife (480) 348-0544; superknife.com.



Hobbico MicroSizers Pit Case

HOBBICO MAKES A PIT CASE for carrying and storing all of your MicroSizer accessories. Made of clear 2mm plastic, the 9x4.5x5-inch case comes with three removable trays for organizing all those small parts and accessories. A decal sheet with 19 different labels makes it easy to mark the part trays.

The case has room for several cars, transmitters, batteries and various other parts, and the dividers in the smaller trays are removable, so you can customize the compartment sizes. —David C. Konneker

Hobbico MicroSizers Pit Case—HCAP0003; \$12.

Hobbico; distributed by Great Planes Model Distributors (217) 398-6300; (800) 682-8948; hobbico.com.



Dynamite Tazer forward/reverse electronic speed control

DYNAMITE'S NEW TAZER ELECTRONIC SPEED CONTROL (ESC) is fully proportional in both forward and reverse, handles stock and mild modified motors, is easy to install, uses a pushbutton setup and is attractively priced. Should this be your next ESC?

FEATURES

PROGRAMMABLE REVERSE DELAY. The Tazer allows you to set the ESC to pause a full second after braking before engaging reverse. This allows the car to slow down, thus easing the strain on the gears.

PLUG-IN INSTALLATION. The Tazer comes prewired with a Tamiya battery plug and bullet-style motor connectors. The ESC also comes with three solder-on capacitors for your motor. The instructions provide easy steps and diagrams that walk you through the soldering process, should that need arise.

THERMAL-OVERLOAD PROTECTION. When the ESC's temperature gets too hot to handle, the thermal-overload protection feature will automatically shut down the power to the motor to protect it from frying.

15-TURN LIMIT. The Tazer can handle motors all the way down to 15 turns.

MANUFACTURER'S SPECIFICATIONS

Operation:	proportional forward/reverse
Motor limit:	15-turn
Reverse delay:	1 sec. or off
Input voltage:	6 or 7 cells
Peak current:	440 amps
Continuous current:	110 amps
Full-on resistance:	0.019 ohms
Frequency:	7812 Hz
BEC output:	6 volts/1 amp max.
Overload protection:	thermal
Dimensions:	1.59x4.83x0.72 in. (47.3x43.4x18.35mm)
Weight:	2.48 oz.

ONE-TOUCH PROGRAMMING. If you don't want a pause for your reverse, you can set up the ESC to eliminate the reverse delay. The one-touch button makes programming a snap.

120-DAY LIMITED WARRANTY. Dynamite stands behind the Tazer with a 120-day warranty for defects in materials and workmanship.

TESTING

I installed the Tazer in an HPI RS4 Sport with a Team Orion Chrome Stock RS motor. The first feature tested was the reverse delay. It took a couple of minutes to get used to the one-second delay, but once I was accustomed to it, the feature became a very effective braking tool. With a few street runs completed, I installed the Tazer in a Team Associated RC10 Team Built T3 with a Team Orion 19-turn Rush motor, and I turned off the brake-delay feature. With just a push of a button and a few trigger inputs, the T3 was ready for some hot laps. With the reverse delay turned off, the truck easily popped wheelies when I used reverse and then full throttle. It isn't great for the gears, but it does look cool! I ran a few batteries in the A-Team's truck, and the ESC performed well.

THE VERDICT

The Tazer ESC performed solidly without any difficulties to report. It's easy to install, can handle stock and mild modified motors down to 15-turns, has a reverse feature and a low price tag, thus it's a worthy upgrade for most RC vehicles.

—Eric Quertermous

Dynamite Tazer forward/reverse ESC—DYN4910; \$55.

Dynamite; distributed by Horizon Hobby (800) 338-4639; dynamite.com.



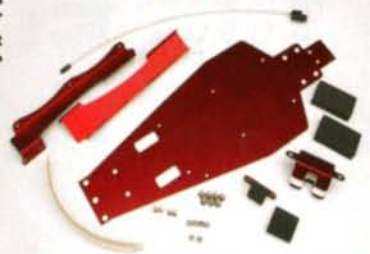
RCGUY.COM



Gecko Clodbuster™
Rock Crawling Chassis

Mico Engineering
RCGUY Parts & Accessories **\$160US** plus shipping
www.rcguy.com

Nightmare Chassis
Lightweight Aluminum
Rustler Chassis



Toll Free 1-866-331-7744
WWW.NIGHTMARECHASSIS.COM

RADIO CONTROL **car action** CUSTOMER SERVICE

For fast service, go to:
www.rccaraction.com
and select "Customer Service"

All of the following services are available online!

- Change your address
- Report missing or damaged issues
- Make payments
- Check your account status
- Renew your subscription

How to read your label:

■BXNBNMG *****AUTOM 3-DIGIT 066
#12345ABC123AB12C# AUG 04 RCCA 000
|||||

Your account number is
12345ABC123AB12C.
Your expiration date issue is August
2004.

Address changes

Please allow 4-6 weeks for address
changes to be processed. To change
your address by mail, send a copy of
your current label and your new address
information to:

RC Car Action
P.O. Box 427
Mount Morris, IL 61054 USA

You can also contact us at
RCCA@kable.com, (815) 734-1243,
fax (815) 734-5879.
For faster service, go online.

Our cancellation policy

All cancellations must be requested in
writing. You may send your request via
mail, email, or fax.

Our renewal policy

We will send you a renewal notice
6 months prior to your subscription's
expiration date. For faster service,
renew online at
www.rccaraction.com

ADVERTISER INDEX

Ace Hardware Hobbies 280-281	Hobbico 215-219	RAm (Radio Controlled Models Inc.) 287
Ace Hobby Distributors Inc. 30, 95	Hobby People 252-257	RC Guy 283
Acer Racing 271	Horizon Hobby Inc. 188	RC Hub 301
Air Age Media 302	HPI Racing 100-101, 138-139	RC Imports 85-87
Airtronics 249	HyperHobbies Inc. 283	RC Nitro 291
American CNC Machining 297	Imex Model Co. 137	RC Screwz 289
Bear Air 278	Integy Inc. 152	RC Solutions 279
Boca Bearing Co. 290	K&S Engineering 288	rcstore.com 298-299
Bruckner Hobbies 240	Kyosho 32, 34-35, 179	RC Trix 293
Carlsen USA R/C 300	Leisure Time Hobbies 290	RC Universe 258
Castle Creations 267	Megatech 203, 222, 282	RC World 287
Calandra Racing Concepts 268	Micro Track Systems 271	RCX 2004 269
CEN/Genka Trading Corp. 98-99	Mini RC Hobbies 287	RCX: Get Started In Radio Control 197
Chin Ngai Hobby & Co. 245	MIP 196	Robinson Racing Products 58-61
Competition Electronics 300	Model Rectifier Corp. (MRC) 17, 127	Schumacher USA 131
Dayberry RC Distributors 283	Mugen USA 142-143	Serpent USA Inc. 284, 301
Deans 251	National Champs Sweeps 242-243	Sidewinder Fuels 198
Du-Bro 277	Nightmare Chassis 288	Stormer Hobbies 260-263
DuraTrax 97, 173, 227, 295	NitroHouse.com 272-273	SVM Crono 239
Dynamite 20-21, 163	Nova RC Products 290	Tamiya America Inc. 14-15, 44-45, 304
eHobbies 290, 296	Novak Electronics 25	Team Associated 12-13, 22-23, 38-43, 93, 150-151, 187
ERI Associates 286	OFNA 49, 51-57, 62-67, 153, 176, 189, 194, 195, 206	Team Losi 128-129, 185, 166-167
Extreme Standz 284	OmniModels 214	Team Orion Inc. 29, 31, 33, 111
First Hobby 213	Parma/PSE 265	Tier 1 Racing 177
Flex-T Products 286	Peak Racing Products 130	Tower Hobbies 228-235, 247
Fox Manufacturing 290	Power Line Cell 244	Traxxas Corp. 19, 114-121
Fusion Batteries 156-157	Pro-Line USA 6-9, 241, 306, C3	Trinity Products Inc. C2-5, 10-11, 26-28, 75, 82-83, 111, C4
Fusion Hobbies 290	PSP Mfg. Co. 284, 288	Ultimate Nitro Engine Guide 223
Futaba 37, 91	PTI Racing 286	Varad Corp. 89
General Silicones Group 46-47, 77	Quantum Models 275	Venom Racing 271, 287
Global Hobby Distributors 140-141, 154-155, 174-175, 178, 202	RadioShack 164-165	XXX-Main Racing Inc. 201
Golden Horizons 288-289	RC Car Action 259	
Gorilla Maxx RC Parts 290	R/C Car Kings 285	
Hacker Brushless USA 149	RC Explosion DVD 207	
Hitec RCD Inc. 81		

RADIO CONTROL CAR ACTION (USPS 001-087; ISSN 0886-1609) is published monthly by Air Age Inc., 100 East Ridge, Ridgefield, CT 06877-4606 USA. Copyright 2003, all rights reserved. Periodicals postage permit paid at Ridgefield, CT, and additional offices. Canadian Post Publications Mail Agreement no. 40008153.

SUBSCRIPTIONS AND BACK ISSUES: U.S.: call (800) 877-5169; Canada and elsewhere: call (815) 734-1243; fax (815) 734-5879, or go to www.rccaraction.com. U.S.: \$27.95 (1 yr.); Canada: \$39.95, including GST (1 yr.); elsewhere: \$49.95 (1 yr.). All international orders must be prepaid in U.S. funds. Visa, MC, Discover and AmEx accepted.

EDITORIAL: send correspondence to Editors, Radio Control Car Action, 100 East Ridge, Ridgefield, CT 06877-4606 USA. Email: rcca@airage.com. We welcome all editorial submissions, but assume no responsibility for loss/damage of unsolicited material. To authors, photographers and people featured in this magazine: all materials published in Radio Control Car Action become the exclusive property of Air Age Inc., unless prior arrangement is made in writing with the publisher.

ADVERTISING: send advertising materials to Advertising Dept., RC Car Action, 100 East Ridge, Ridgefield, CT 06877-4606 USA; (203) 431-9000; fax (203) 431-3000; sales@airage.com.

CHANGE OF ADDRESS: to make sure you don't miss any issues, send your new address to Radio Control Car Action, P.O. Box 427, Mt. Morris, IL 61054 USA, six weeks before you move. Please include the mailing label from a recent issue, or print the information exactly as shown on the label. For faster service, go to www.rccaraction.com and click on the customer service link.

POSTMASTER: send Form 3579 to Radio Control Car Action, P.O. Box 427, Mt. Morris, IL 61054 USA.

WANT TO CONTACT THE BACKLOT? Email backlot@airage.com, or write to Backlot, c/o RC Car Action, 100 East Ridge, Ridgefield, CT 06877-4606 USA

EXCUSES, EXCUSES, EXCUSES ...



The Backlot in-box is already filling up with your bad-driving excuses (as requested in October 2003's Backlot), but Dave Russo of Gilford, NH, is definitely the leader in lame reasons to lose. He sent 10 of 'em!

1. I forgot to re-gear and didn't want to blow up my motor.
2. The lap counter's beep as it counted laps was distracting.
3. I just wanted to see if you would finish if I didn't.
4. I was making sure those clouds overhead wouldn't bring rain.
5. The nitro was getting to me, I forgot which way "left" was.
6. I was going for the "Best Wreck" award.
7. I was trying to see if I could drive standing on one foot. It was my own "Simon says" game.
8. I'm pretty sure one of my motor screws was loose, so I played it safe.
9. I was tired of doing so good.
10. I was real antsy because I needed to use the bath room—don't eat beans before the Mains.



hot or not

Remember the Masami-themed body from the B4 "Track Test" in the August issue? Glenn "Thumper" Wemmer of Blanchard, OK, won it as part of my on-line incentive to send comments on the B4. Since I had to send the trick body to Glenn, my B4 was left shell-less, which led to this KTM-inspired one-color wonder. It's been hanging out on my desk for a while, and the reaction from the guys has been totally "love it" or "hate it." What do you think? Drop me a line atniceB4@airage.com if you're into it, or at uglyB4@airage.com, if, well, you know. We'll count up the votes, announce the results in a future Backlot and award prizes to a random lover and hater.



HUNTED WORKSHOP

The good news is that associated editor Kevin Hetmanski just bought a new house; the bad news is that it appears to be haunted. We have a picture of Kev setting up his new workshop, and if you look at it just right, you can see a scary dude looking back out at you (not Kevin, another scary dude). Seriously, it will freak you out. Check out the pic at rcraction.com.



CAUTION: YOUR HEAD MAY EXPLODE

Solve these brain-teasers, and you might win a prize! Email your answers to backlot@airage.com. A winner will be chosen at random from all the correct entries!

If three drivers can each run three laps in three minutes, how many drivers will it take to run 18 laps in 9 minutes?

There are 12 cars on the track. Some are red with orange flames, some are all red, and some are all yellow. One third are solid orange. Is it true that 4 cars are yellow?

Which is heavier: a pound of aluminum or a pound of titanium? ■